Special Theme Supplement—Airports, Ground Support pp. 25-45

REFERENCE COPY

AMERICAN AVIATION

moonlight at noon

Operating in the Arctic areas, aircrew and groundcrew of the Royal Canadian Air Force could throw away the clock and use a calendar—and tear off November, December and January as the period of the long night.

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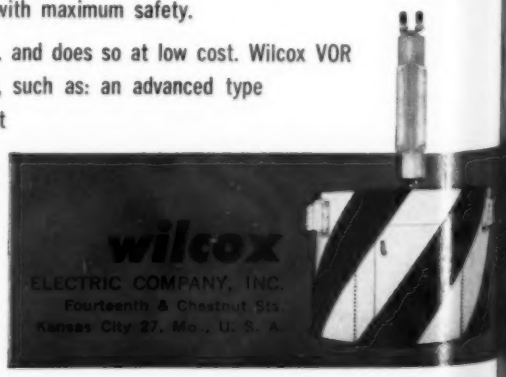

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Which Anti-Skid System Will Serve You Best?

Before you decide, read this

Two superbly efficient systems—developments of Wheel and Brake Engineering of the Aviation Products Division of Goodyear—now offer solutions to tire skidding in aircraft landings. Each holds certain definite advantages, both can be depended on to minimize the hazards inherent in today's high-speed landings. Why not look at the facts below, then let us help you decide which system better suits your operating conditions. For complete information, just write: Goodyear, Aviation Products Division U-1713, Akron 16, Ohio, or Los Angeles 54, California.

Skid Warning System*†

A plunger thumps the pilot's foot.

How it works—The moment rotation of any tire begins to drop abnormally, a plunger projecting through the brake pedal involved actually thumps the pilot's foot, warning him to ease up on brake pressure, eliminating skids and tire damage.

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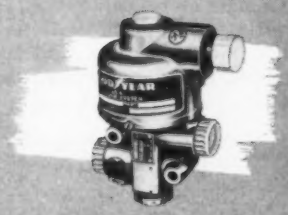
*Now CAA-approved for Douglas DC-7B series aircraft. Others to follow soon.

†Patents pending

Fully automatic Anti-Skid System



A solenoid valve releases brake pressure.

How it works—Automatically releases the brake pressure on the skidding tire through the action of a solenoid valve. When the skid has been stopped, the valve automatically allows braking to recommence.

Advantages—Complete and automatic protection against all skid and wheel lockup conditions. Eliminates flat-spotted or blown tires. Extremely rapid response, resulting in consistently short stopping distances for any given runway condition. Sizable number of field installations have proved years of trouble-free service.

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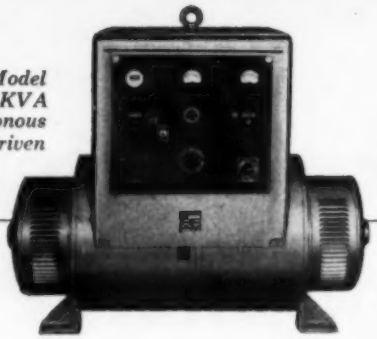
Synchronous
Motor Driven



modern equipment for TODAY'S Needs!

Model 3008-P-37.5 KVA
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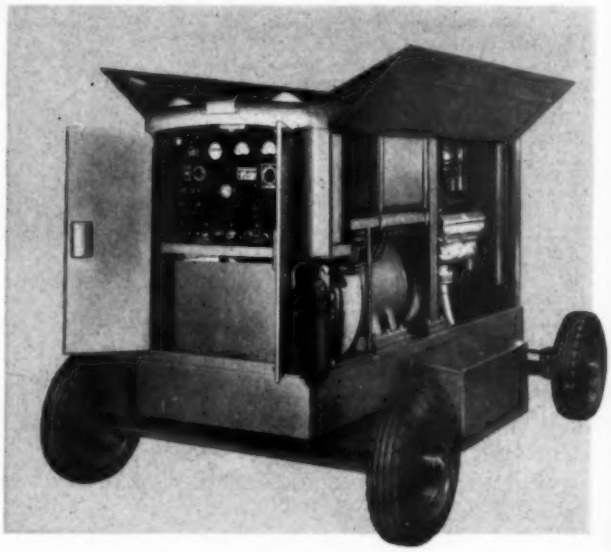

Here's the new Hobart 400 cycle ground electrical support equipment that is as modern as the aircraft they power. Versatility, portability and performance, plus real economy—that's what you get with Hobart 400 Cycle Ground Power Units.

Most jet aircraft have 115/200 volt, 400 cycle, 3-phase, 4-wire, wye-connected electrical systems which must be energized by an external power source during ground operations when the engines are not running. Hobart supplies the ground electrical support equipment to take care of the power requirements of the aircraft while at the passenger terminal or on a towing (for brakes, lights, VHF and interphone communication requirements) journey.

The equipment is also used to supply high-quality closely-regulated 400 cycle power for hangars, maintenance shops, calibration, instructional facilities, and other installations where precision bench mockup and test equipment requiring precise power are operated and tested.

capacity, economy, utility—

You get all three in a greater measure with Hobart Ground Power Units. You will have less maintenance costs and down time due to the heavy-duty construction of Hobart 400 cycle units. There are no noisy high speed generators or costly to maintain speed increasers. Common speeds for Hobart Equipment, depending upon the method of drive, are 1200, 1714, and 2400 r.p.m., using 40, 28, and 20 field poles.

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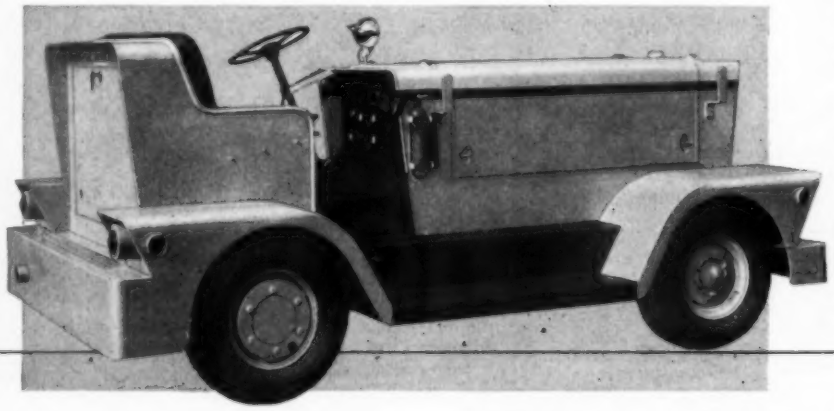

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When you see the new pure jet passenger aircraft on the ramp this fall, wearing the colors of American, Pan American and United Airlines, you'll also see a Hobart 400 cycle ground power unit supplying their electrical needs. These three progressive airlines know they can depend on Hobart's proven performance, economy and versatility.

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Send us your specifications, desired quantities, delivery schedules, and other pertinent requirements which will enable us to furnish complete information and prices. If you wish, a representative will call to discuss your needs—without obligation.

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AMERICAN AVIATION

SEPTEMBER 22, 1958—VOL. 22, No. 9

WORLD'S LARGEST AVIATION PUBLISHERS

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NEW YORK	HOUSTON, ATLANTA, WASHINGTON
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CHICAGO	CINCINNATI, ATLANTA, MEMPHIS, NEW ORLEANS, ST. LOUIS, MIAMI
CINCINNATI	CHICAGO, ATLANTA, MIAMI
MIAMI	CHICAGO, JACKSONVILLE, ATLANTA, CINCINNATI
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NEW ORLEANS	CARACAS, HAVANA, ATLANTA, DALLAS, CHICAGO, HOUSTON
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HOUSTON	ATLANTA, ST. LOUIS, MEMPHIS, NEW YORK, NEW ORLEANS
CARACAS	HAVANA, MONTEGO BAY, NEW ORLEANS
HAVANA	CARACAS, NEW ORLEANS, MONTEGO BAY

Things Won't Be the Same by 1962

Make no mistake about it, the air transport industry is about to enter the roughest period of its thirty-odd years of existence.

On the plus side, the launching of American jets means a revolutionary advance in long-distance transportation the like of which has never been known. The speed and comforts of jets will open vast new markets for airlines everywhere.

But below the promotion ballyhoo and the advertising and public acceptance of jet flying is an airline industry in turmoil, of big power plays, of dislocation, and of enormous stresses and strains. Before the jets are fully integrated into service by 1962, the trunkline industry will have been transformed in many ways.

Competition will be the sharpest in history. The stronger are most likely to get stronger and the weak will get weaker. Jets will not only be disruptive to the old DC-3 route patterns on which the airline system was largely based, but the financial strains of shifting into the costly jet era will take their toll of weaker carriers one way or another. And weakness may by no means be in direct ratio to size. There are weak and strong carriers in all brackets.

The carriers most on the spot are the intermediate and regional trunks, although these are not alone in feeling the financial pinch. Merger talk is in the air. Merger discussions have been under way informally in many areas. There is a general assumption that regional trunks must either merge to form larger systems, or be absorbed by the larger trunks. There is no reason to doubt that within the next four years there will be a reduction in the number of trunks.

But long before the jet era is officially in gear, the industry faces its worst rash of labor problems. Not only is there the problem of coming to agreements with pilots for flying jets, a tough one to say the least, but there is the battle between pilots and flight engineers. Crew demands for jet flying have reached new heights and at this writing there is no clear-cut path to labor peace in the industry. Without industry-wide bargaining to place the companies on a somewhat even basis with unified unions, there would seem to be no hope for an easy way out of the present impasse without strikes or imbalances.

Industry managements have never been very realistic in handling labor problems. The present impasse is in a large measure due to the inability of managements to work together in the past for sound solutions in the labor field. One cannot even at this date be too hopeful that they will become as advanced on labor matters as they have been in ordering new equipment for competitive advantages. The unions have long since recognized this fact of life and planned their strategies accordingly.

On the CAB front it is transparently clear that the regulatory agency is ill-prepared to meet jet problems. Even the very long and tedious General Passenger Fare Investigation, born in an earlier period, will be virtually ineffective by the time it is finished. The economics of air transport are changing far more rapidly than the climate within CAB. As in the past, CAB will be faced with post-mortems rather than planning. During its twenty years of existence, CAB has contributed very, very little of constructive benefit in either planning or understanding.

Then there is that great do-nothing agency called the Department of Commerce. President Eisenhower has killed the airport bill which would provide additional federal matching aid to cities and in doing so issued under his own name a "memorandum of disapproval" obviously written by Commerce. The net result is that inadequate airports will be a major drawback to the institution of jet service to many important cities. The President's parroting of the Commerce position that airports are a local responsibility and that the Federal government must withdraw from matching aid is about as stupid and unrealistic a statement as we've read in years. Airports are on a par with highways. The Commerce Department has become the enemy of civil aviation, not the friend, protector and promoter. Politically, its position will backfire on the Administration.

Within industry itself, jets will provide manpower stresses and strains. All too few companies have taken advantage of the great and enthusiastic reservoir of potential executive talent available to it in its pioneering and growing stage. There is a rather astonishing lack of all-round management talent being prepared to take over the top reins of companies that must be bigger and stronger in corporate stature. All too many younger men have gotten discouraged and left the ranks of the industry. And the pressures on those who remain have become greater. Pioneers in all fields seem to resist turning over responsibilities; the airline business is no exception.

It would have been more sensible in many ways to have postponed jets for another five years. But new technological developments have never been held back in our competitive system. Whether anyone likes it or not, or whether anybody is fully prepared, the fact is that the jets are coming by ones, twos and by the scores.

The demand on sales departments will be enormous. To add 65 billion available seat-miles by 1962 to the 54 billion available seat-miles in existence by the end of this year is a simply staggering prospect. With retirement of piston-engined equipment, the net seat-miles available by the end of 1962 is estimated to be about 80 to 90 billion. The best sales talent in the world will be needed to keep those seats filled. No matter how low the seat-mile cost of a jet may be, it is only low when there are warm bodies in the seats.

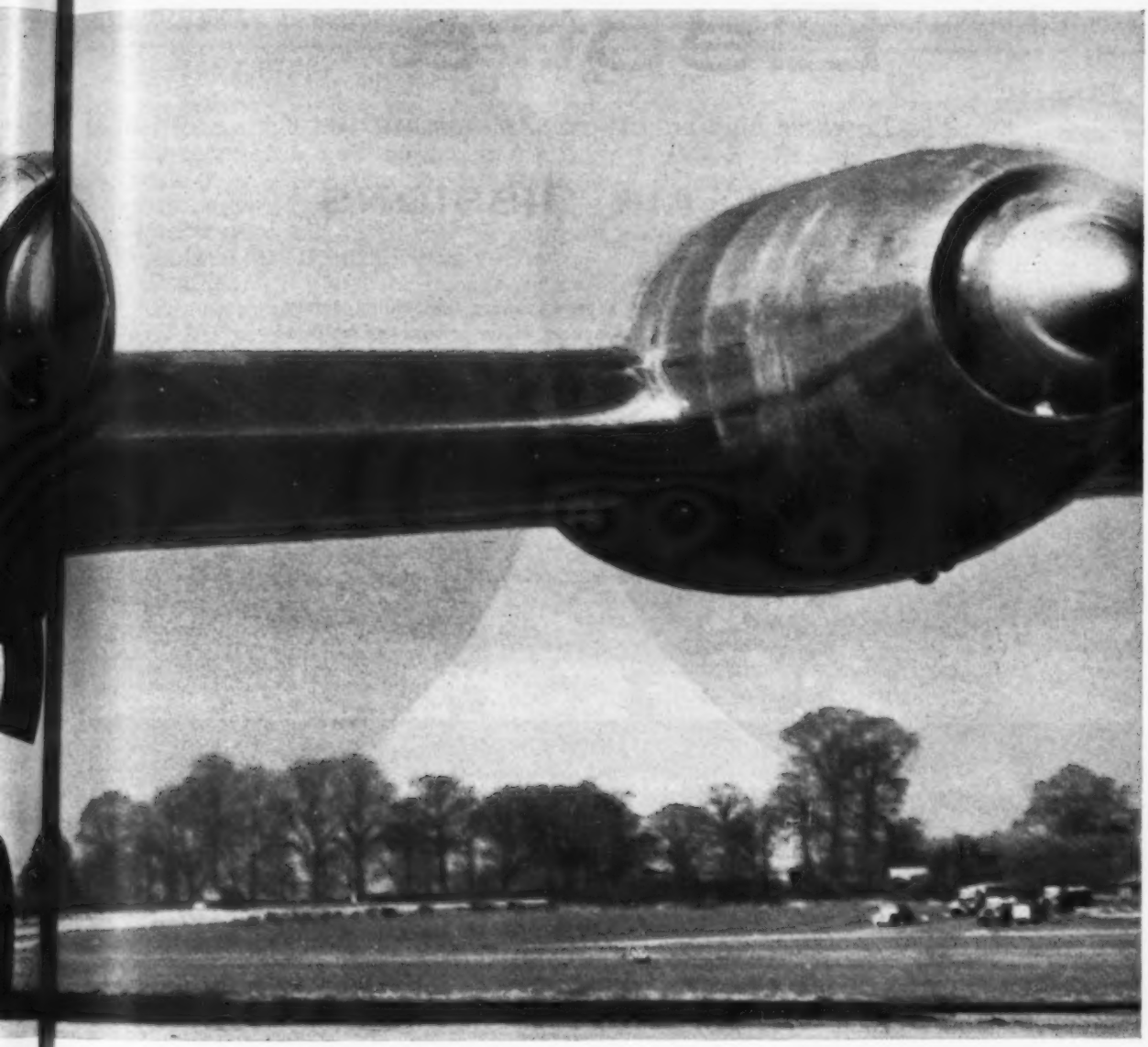
Slice it any way you want to, it is an exceedingly safe bet that the jet era will transform the industry within the next four or five years. Both the rewards and the penalties will leave little room for middle ground.

Wayne W. Parrish

BRISTOL PROTEUS

builds up overhaul life—

now tops 1,600 hours



Never before has an aero-engine proved its reliability so rapidly, so conclusively as the Bristol Proteus 705 turbo-prop.

The Proteus first entered airline service *less* than 18 months ago. Yet already its life between overhauls has risen to 1,600 hours—authoritative evidence of this turbo-prop's mechanical excellence and exceptional reliability.

More power for less fuel. Further, the Proteus is the most powerful turbo-prop in commercial operation. And it has a lower specific fuel consumption than any gas turbine in civil or military service. But development does not stop here. There are now new versions—the 760 series—designed to give *even more* power at an *even lower* specific fuel consumption.

Flexible, efficient, quiet. The Proteus features the Bristol-pioneered free-turbine system. This system gives flexibility in choice of power and propeller speed, produces remarkable efficiency over a wide range, and results in very low noise levels.

Over 2 million miles a month in service. The Bristol Proteus powers the magnificent Bristol Britannia—currently setting new standards of fast, smooth comfort, and flying *well over* 2 million miles a month on world-wide routes.

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Meeting the exacting requirements of the U. S. Air Force and the Military Air Transport Service, the Lockheed ELECTRA offers unequalled safety, comfort, jet-age prestige and performance for this most vital service.

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RAPID DESCENT: Efficient Fowler flaps and high drag from flight-idle propeller position enables the ELECTRA to descend very rapidly from cruise altitudes.

POSITIVE REVERSE THRUST PROPELLERS: Make short-runway airports available for routine operations even under adverse snow and ice conditions.

FAIL-SAFE STRUCTURAL DESIGN: Optimum structural integrity built into all components assures maximum safety under all flight conditions.

EXCELLENT VISIBILITY: The ELECTRA's "front office" establishes new standards of visibility for pilots of transport aircraft.

SPEED: The ELECTRA flies 100 knots faster than present special mission transports.

ECONOMY: Efficient operation at low as well as high altitudes, yields economy even on shortest flights.

LOCKHEED *means leadership*

Lockheed Aircraft Corporation CALIFORNIA DIVISION, *Burbank and Palmdale, California*

IN BRIEF

Merger talk about Pan American and National reached a new high with the disclosure of a stock exchange and jet leasing agreement between the two airlines. The stock deal will make PAA the largest stockholder in NAL and vice versa. The jet arrangement gives PAA more aircraft in summer for its North Atlantic runs and gives NAL additional jets in winter for its Florida traffic.

The application filed with CAB said that the parties do not believe that the deal constitutes an acquisition by either of them or control of the other, but if CAB finds that control is involved, they want approval of such control (see page 58).

Sale of 12 Fokker-built F-27s to the Dutch AF is expected to be announced shortly.

This will bring the total of these turboprops sold by the Dutch manufacturer to 57. Output of the Friendships is expected to reach six per month in 1959.

Fokker's first production F-27 will be delivered to Aer Lingus next month. The Irish airline has ordered eight and plans to start Dublin-Paris service near the end of this year.

June 30 value of backlog reported by manufacturers of aircraft, engines and propellers is down 16% from same time last year and down 4% from March 31, 1958. Backlog for complete aircraft (63% of the $13.772-billion total reported for the first half of this year) was down 6% from previous quarter. Propellers (1% of the total) slipped 23% below the March 31 figure. Military orders account for 69% of aircraft backlog, 78% of engines and 73% of propeller business.

Cessna Aircraft Co. is planning to build 744 of its Model 175s. The company now has orders for 640 which sell for a unit price of $10,995.

Bomber engines and disarmed fighters are being put on the block by Fred J. Witts of Rochester, N.Y., and J. H. DeFuria of Syracuse, N.Y. At present, the pair are negotiating for sale of 700 J47 jet engines taken from recently purchased AF B-36s. They have also purchased over the past year a number of P-51 Mustangs and British Sea Furies. The aircraft are stationed at various bases in Canada.

Okanagan Helicopter Group of Vancouver has placed the first order for a Fairey Rotodyne VTOL airliner for delivery within three years. The craft will be used on inter-city routes in Canada.

De Havilland Engine Co. has developed a new 1,000 shp turboprop version of the Gnome turboshaft unit. The engine will be offered in single or coupled form. The arrangement of reduction gearing and drive shafts can be varied to meet installation requirements of individual aircraft.

The Marines have made a start in buying Lockheed Hercules transports. First contract is for two aircraft, officially designated CV-1s. They will have a dual role —inflight refueling and assault transport.

The plane can refuel two airborne jet aircraft simultaneously. The system is removable, permitting conversion for use as assault transport. Big payload of the Hercules will permit the Corps to make a 50% reduction in its present transport inventory.

The plane is powered by four Allison T56-A-7 engines developing 4,050 equivalent shaft horsepower. These are the same engines which power the Air Force's Hercules B. Like the Hercules B, propellers are four-bladed Hamilton-Standards, which reportedly have cut vibration that plagued the earlier Hercules A models by about 50%.

The Hercules is used by the AF Tactical Air Command, the Air Photo and Charting Service. Versions of the Hercules are also on order by Coast Guard and Royal Australian Air Force.

The Farnborough crash of the Handley-Page Herald has been blamed on a failure in one of its Rolls-Royce Dart engines. Flight of the second prototype is expected within a few weeks.

California Aeromotive has purchased for salvage "Old 1961"—The first Constella-

tion built. Lockheed has been using the airplane as a flying test bed for the past 15½ years.

President Eisenhower's Emergency Board appointed February 27 to investigate disputes between the International Association of Machinists and seven airlines has recommended a two-year contract calling for retroactive wage increases as follows: 5% as of Oct. 1, 1957; 2% as of April 1, 1958 and 2% as of Oct. 1, 1958. The board also recommended adoption of a scale of severance pay based on years of services but limited to loss of employment due to technological advances. It further recommended that union proposals for health and welfare programs to be paid for by the carriers and that certain proposals concerning struck work and picket lines be withdrawn.

The board's findings actually affected only six airlines because, shortly after it began its investigation, United settled its differences with the IAM. Airlines affected by the recommendations are: Eastern, Trans World, Northwest, Northeast, Capital and National. Recommendations are not binding on any of the parties, but are usually accepted in such cases and there were indications that they would be accepted in this instance.

In terms of dollars and cents, it was estimated that retroactive pay would range from about $180 for sweepers to about $300 for mechanics.

Names in the news: D. Walter Swan, 30-year air transport veteran, has been appointed Deputy Assistant Postmaster General (Air and International) of the Bureau of Transportation . . . Nicholas Dykstra has been elected executive vice president of Curtiss-Wright Corp. . . . 58-year-old Paul E. (Pat) Sullivan, vice president-administration and secretary of Western Air Lines died September 10 . . . Mark Kramer, assistant to the president of Continental Air Lines, has been named chairman of the line's jet committee, which will coordinate planning in preparation for operation of Boeing 707s next year: other members of the committee are Joe Martina (Los Angeles maintenance superintendent), Wayne Lydon (Denver maintenance superintendent), Lynn Dennis (v.p.-purchasing), Howard Fetterhoff (purchasing director), Don Wilson (assistant v.p.-operations) . . . Stanley A. Seltzer, air traffic control specialist-liaison for the Air Transport Association of America since 1951, has been named executive director of the Air Traffic Control Association; he succeeds Clifford P. Burton on October 1 . . . John E. Harlin, a TWA pilot since 1933 and TWA captain since 1935, has been selected for promotion to the rank of rear admiral in the U.S. Naval Reserve; besides being the only airline pilot who is also an admiral, he was the only aviation captain selected for rear admiral in the reserve this year.

Odds and ends—Kaman Aircraft's September 2 payroll listed 1,784 employes compared with 1,263 a year ago—a 41% increase . . . Lockheed Aircraft Service-International received a $3.8-million Air Materiel Command contract for maintenance, overhaul and modification of Military Air Transport Service's L-26B/Cs, C-131Ds, DC-6s, C-121As, VC-121Es and H-13Js . . . CAA certification of the Lockheed Electra required four planes flying 124 flights for a total of 152.24 hours; tests also required 50,700 ft. of motion picture film and 27,250 ft. of oscillograph and recorder paper . . . Air Force Vice Chief of Staff Gen. Curtis LeMay set a new non-stop record September 12 by flying a KC-135 Jet Stratotanker 7,100 miles from Tokyo to Washington in 12 hr. 28 min.—67 min. faster than the mark set by Brig. Gen. William Eubank last April . . . General Electric delivered on September 11 the first static J85 engine to Northrop for the T-38 jet trainer; second engine is due next month . . . Manufacturers in July shipped 501 civilian aircraft—of which 454 were 1-to 10-place utility and executive types—with a total airframe weight in excess of 1.4 million lb.; unfilled orders for planes of 3,000-lb. (and over) airframe weight amounted to 687—20% under the backlog of a year ago . . . Convair has five 880 jet airliners in major assembly fixtures or on the production line; mating of fuselage and wing of first is set for early October . . . GE's Light Military Electronics Dept. has a $5 million contract (which may be extended to $14 million) from AMC for production of a forward surveillance radar for B-52s; designation is AN/APS-81.

COMPONENT, PRICELESS, AIR FORCE . . . an Air Force pilot is an investment in time and money which must be protected. He is an irreplaceable link in the chain of defense upon which our nation's security rests. But to the United States Air Force a pilot is more than a set of dog tags. He's your wing man . . . your buddy in the next bunk . . . a priceless member of your team. He deserves, and gets, all the protection the United States Air Force can provide. One new way will be with Kaman H-43 crash rescue helicopters . . . on the alert anytime . . . anywhere.

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PUBLISHED AS A PUBLIC SERVICE BY CONVAIR A DIVISION OF GENERAL DYNAMICS CORPORATION

AIRTRENDS

Military aircraft manufacturers get a tax break as the result of a recent court ruling holding that a corporation may offset excess profits earned on one government airplane contract with losses incurred on another. Actual ruling was on whether Emerson Electric Manufacturing Co. could offset profits on naval aircraft contracts by a deficiency in profit sustained during the same taxable year on Air Force aircraft contracts.

U.S. tax court ruled against the government and held that Emerson could make such a profit/loss offset. Internal Revenue Service says the government will not appeal this decision and will amend the tax regulations to conform with the new policy.

Navy now is using at least three major British-developed systems in its aircraft carrier operations and soon will be using another. The canted deck, steam catapult and reflecting mirror for landings all were adopted from Great Britain, and now the Navy is placing great faith in the new Martin-Baker low-level ejection seat as a means of cutting its aircraft fatality rate. The seats are being manufactured by Grumman. One Navy officer said the service would continue to buy any British developments that improve operations. That is the reason, he said, that the Navy is always an interested spectator at the annual Farnborough show where Britain unveils its newest developments.

Pentagon is making a new try at writing uniform cost accounting rules to apply to all types of contracts, as well as to price redeterminations and contract terminations. A draft of Sec. 15 of the Armed Services Procurement Regulation covering allowable costs is again circulating among interested industry groups. A meeting with industry is scheduled by Assistant Defense Secretary E. Perkins McGuire (Supply and Logistics) for October 15 to discuss expected objections.

Boeing was top prime contractor in the period from July 1950 through December 1957—according to the Department of Defense. Net value of contracts awarded to the company during that time totaled $7.712 billion—4.6% of all military contracts let during the 7½-year period. Others on the list were (figures are in billions): GM ($7.333), United Aircraft ($6.263), GE ($5.94), General Dynamics ($5.621), North American ($4.996), Douglas ($4.762), Lockheed ($4.35), Curtiss-Wright ($2.686), Republic ($2.618), Martin ($1.865), Sperry-Rand ($1.831), Bendix ($1.742), Grumman ($1.596), McDonnell ($1.574).

Other ranking aircraft and related manufacturing firms in the list included: Westinghouse, 19th; Northrop, 20th; Hughes, 21st; RCA, 22nd; IBM, 23rd; Avco, 26th.

New changes in research and development policies and procedures are in the making at the Pentagon. However, Defense Secretary McElroy wants to wait before making the changes until the important new post of Research, Engineering Director is filled—he hopes for a suitable nominee by October 1, after which the business of changing procedures and policy will be pushed.

Douglas Aircraft has been awarded two AF contracts totaling $287,500 for development of a standardized aircraft cargo handling system said to be capable of off-loading 90,000 lbs. of cargo from a C-133A Cargomaster and reloading the same amount in a total time of about 30 min. The company says this would reduce cargo handling time to that required for refueling the aircraft.

One contract for some $90,500 provides for a study to adapt the system to aircraft with high cargo floors. The second calls for design and fabrication of a set of track structures, 53 cargo pallets and 33 cargo cages for installation in a C-133A. This equipment will undergo Air Force operational suitability tests.

Although formal selection may be some time off, General Electric's CJ-805 has gained the inside track as powerplant for Capital's Convair 880s. A big factor favoring the GE jet reportedly is the high premium to be paid for aircraft modification if an alternate engine is desired.

Navy can be expected to use the aircraft operations safety factor as a major argument in future requests for funds to buy additional Forrestal-class carriers. Navy is trying to get its major accident rate down to 1.9 per 10,000 flying hours this fiscal year, against 2.83 in fiscal 1958. Since pilot factor figures in about 55% of major Navy aircraft accidents, the safety argument for the big carriers is important. Their accident rate is some 50% lower than that for smaller carriers.

Secretary of Defense McElroy isn't writing off the manned interceptor. As he sees it, there remains a need for the interceptor, area-defense missiles and Nikes. Theory is that defense-in-depth concept requires all three types. Economy will probably dictate fewer units in all groups. However, picture could change sharply depending on what happens in Formosa and other areas in which crisis conditions exist or are expected.

Revival of the "make-or-buy" provisions of of contracts by Air Force is certain to cause trouble. Contract clauses again being used would give AF the clear power to direct a prime contractor to buy from a supplier selected by the AF regardless of the clear responsibility given the prime contractor for performance under the weapon systems management concept. Among other difficulties the revived clauses could hold up a start on the contract until after the AF comes through with a list of approved suppliers.

Support for more negotiations of contracts rather than advertised bidding will come from the Strategic Industries Association, a group of small defense contractors which believes that technology would have to be frozen in order to establish the type of fixed specifications required for advertised bidding. Feeling is that advertised bidding should be used only in cases of items of common supply where designs are owned by the Government or in the public domain.

Economy isn't dead at the Pentagon. Newest troubles will come from the attempt to hold the lid on spending as an anti-inflationary move and Administration's basic policy of striving for a balanced budget. Alternatives might be a Congressional try at price and wage controls, possibly new excess profit taxes.

Army trend towards greater use of weapon system management concept in handling of aircraft and missiles contracts is interesting to manufacturers who are finding the Service easy to do business with as it battles for a share of responsibility both in the aircraft and space area.

More changes are in the making at the Air Materiel Command, with major attention being devoted to improving the management of the big supply system. Air Force is encouraged to take new steps as a result of the favorable reaction to the handling of "hi-valu" supply items.

Amendment to Section 9, Part I of Armed Services Procurement Regulation dealing with patents is due to be issued by the Defense Department soon. Reportedly, it may provide protection of proprietary rights of contractors and subcontractors in developments resulting from research and development contracts sponsored by the Defense Department. Industry groups have long complained of damage, particularly to small business, resulting from current provisions of the regulation.

New interest ought to be forthcoming in the adequacy of incentives offered to Service test pilots as a result of the death of Captain Iven Kinchloe. Move may be on to boost life insurance coverage or to provide better pensions and pay.

Look for the final announcement of the details of the merger of Northrop Aircraft Inc. and American Bosch Arma about January 1. If all goes as expected Northrop President Whitley C. Collins will be president of the combined company and C. W. Perelle, president of American Bosch Arma, will be chairman of the board and chief executive officer. Combination, if final details can be worked out, will provide the new company with substantial backlogs in the electronics business as well as a slice of the airframe and missile business. Successful culmination of negotiations could be the first in a series of combinations developed to strengthen company positions.

ORENDA

IROQUOIS

BENDIX* IGNITION SYSTEMS—FOR THE BEST IN JETS

Another great jet engine has incorporated an ignition system designed and built by Scintilla Division of Bendix Aviation Corporation. Such a system, with the plus features that are a result of years of ignition design experience, is in use on the powerful Iroquois jet engine, product of Orenda Engines Limited, of Malton, Canada.

Selected as the power plant for the Avro Arrow, the Iroquois is a powerful jet engine of very advanced design developing over 20,000 pounds' thrust. Arrangements were recently completed between Orenda and Curtiss-Wright to permit manufacture of the Iroquois engine in the United States.

We are proud that Orenda chose a Bendix-designed jet ignition system for the Iroquois. Serviceability, reliability, and extended overhaul life are inherent features of all jet ignition systems built by Scintilla Division of Bendix Aviation Corporation.

Canadian Affiliate: Aviation Electric Ltd., 200 Laurentien Blvd., Montreal 9, Quebec.

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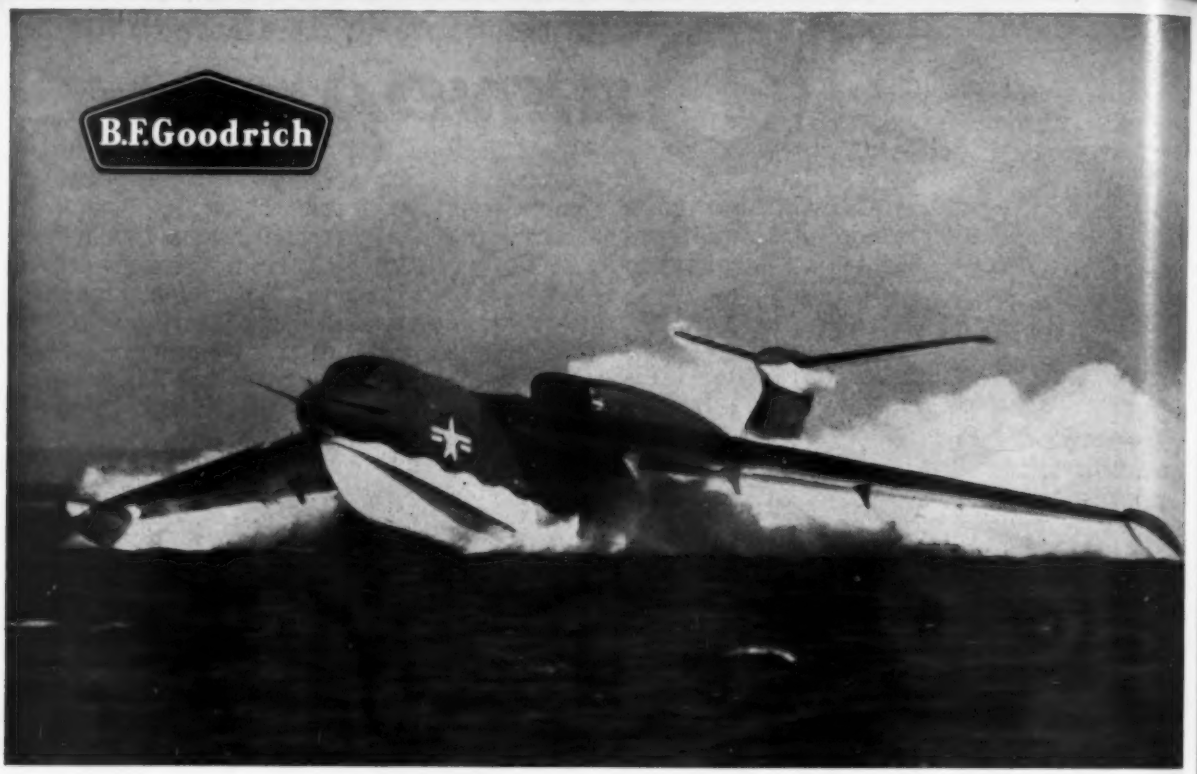
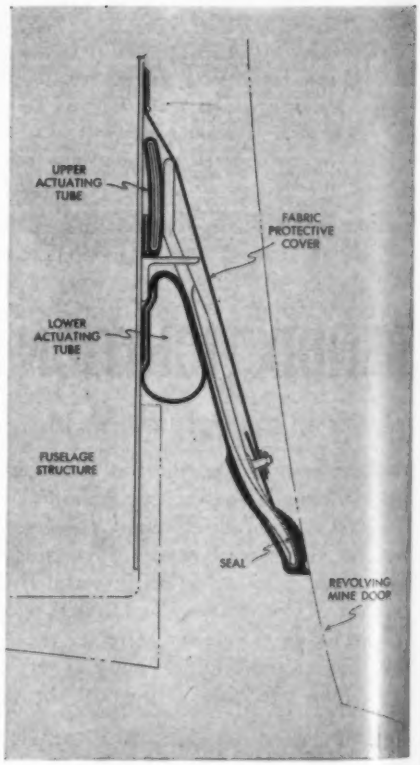


B. F. Goodrich Mine Door Seal helps Martin SeaMaster keep its powder dry



Every time the Martin P6M SeaMaster takes off or lands, almost the entire bottom is submerged. And since a large portion of the bottom is formed by a radically new rotating mine door, some way had to be found to keep water out of the mine bay.

To close the gap of several inches between the door and the hull, B. F. Goodrich helped develop, and is now building, a special pneumatic sealing system. The drawing shows how the rubber seal fastens to the hull and to the bottom of a series of metal fingers. When the lower actuating tube is inflated as illustrated, it levers the fingers to press the seal against the door. When the upper tube is inflated, it levers the fingers again to retract the seal.

This unique device always provides positive closure because it compensates for deflections of either the hull or the door. And the special B. F. Goodrich rubber compound used for the seal withstands damage from ozone, jet fuel, hydraulic oil, salt water, extreme temperatures and high water pressure.

This development is typical of the way B. F. Goodrich engineers work with manufacturers to come up with the right answers for their specific problems. Why don't you outline your engineering problem in a letter to B. F. Goodrich Aviation Products, a division of The B. F. Goodrich Company, Akron, Ohio.

B.F.Goodrich aviation products

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AMERICAN AVIATION

SEPTEMBER 22, 1958—VOL. 22, NO. 9

WORLD'S LARGEST AVIATION PUBLISHERS

Gloomy Budget Has Bright Spots

New procurement blocked, but this year's expenditures won't be frozen; obligation rate will be steady

By Betty Oswald
Defense Editor

Aircraft and other defense contractors will have to fight hard to maintain a share of scarce defense dollars in the years immediately ahead. This was made abundantly clear when the Bureau of the Budget announced an estimated federal deficit of $12.2 billion in the fiscal year which ends next June 30.

Competition for funds will be acute because the Administration wants a balanced budget by 1962 at the latest. Aggravating the fight for funds is a renewed emphasis on civilian programs. Largest part of spending increases which threw the budget out of balance came from civilian type programs.

Defense is now taking about 59 cents of the budget dollar. Any increase in defense spending would have increased the budget deficit this year, a fact of life with which the Administration is prepared to live with and which would make a later budget balance virtually impossible.

What does this mean to defense contractors in general and to the aircraft industry in particular?

It means first of all that the Bureau of the Budget will not permit the Pentagon to obligate approximately $950 million in new procurement for which the Congress provided funds. This includes an additional 15 KC-135's and $140 million for the purchase of airlift capability.

Second, there will be further program adjustments covering aircraft and missiles still in relatively early stages of development. The reason is that any continuation of these programs at planned levels would have a major impact on defense spending in fiscal 1960 and later years. Chances are that at least one and probably more weapon systems may be completely dropped. There are no decisions yet as to the victims. However, indications are that there may be some cutback in the B-58 program and that the Navy will be hard put to find the money for the A3J-Vigilante.

Other projects reportedly in trouble are some of the competing missile programs. However, the whole picture is complicated by uncertainties as to the future of the B-47s now undergoing extensive overhauls to fit them for use as tactical weapons and the running battle between the advocates of the role of interceptors and missiles in the air defense picture.

On the plus side of the ledger, however, budget officials make it plain that there is no intention to freeze expenditures during the current fiscal year. They say, however, that expenditure "guesstimates" have been submitted by the Army, Navy and Air Force to Defense Secretary McElroy. Mr. McElroy reportedly has told the Services that they must live within the expenditure targets.

Also on the plus side is the promise that there will be no lull in the rate of obligation. Present estimates are that the Defense Department will place orders for major items totaling a gross of about $17.6 billion as compared with about $16.5 billion in fiscal 1957.

New business will be placed, Defense Department officials promise, in an orderly fashion, with obligations remaining at a level rate throughout the entire year. This should give industry a chance to plan in an orderly fashion as compared with the feast and famine cycle which occurred during the last fiscal year.

Orderly procurement is coupled in the minds of the Defense planners however with a hoped-for decrease in prices —which might boost the availability of funds a little. This last is a forlorn hope as officials continue to worry about the inflationary effect of the big budget deficit, the biggest in peacetime history.

Also on the plus side, there are no signs now of any precipitous declines in defense spending, although it is conceded that inflation is helping to rob the country of what it may need in the way of defense weapons. Budget Director Maurice Stans hopes that the

Current National Security Program

[Fiscal years, In millions]

Description	New Obligational Authority			Budget Expenditures		
	1958	1959		1958	1959	
	Actual	January Estimate	Current Estimate	Actual	January Estimate	Current Estimate
Department of Defense—						
Military Functions:						
Military Personnel (pay, subsistence, and individual clothing) [1]	$9,816	$10,225	$10,120	$10,439	$10,523	$10,570
Operation and Maintenance (equipment, facilities, medical care, supply systems, purchase of spare parts)	9,371	9,322	9,263	9,072	9,292	9,419
Major Procurement and Production (aircraft, ships, vehicles, weapons, missiles, etc.)	11,399	13,447	15,297	14,667	13,753	14,278
Military Construction, Reserve Components, Research and Development, and Other [2]	6,163	5,946	6,218	4,832	6,007	6,363
Defense Contingencies	.....	500	.....	.....	500	.....
Anticipated Supplemental	.....	205	180	.....	205	170
Total, Department of Defense	**36,749**	**39,645**	**41,078**	**39,010**	**40,279**	**40,800**
Mutual Security Program—Mutual Defense Assistance:						
Military Assistance	1,340	1,800	1,515	2,176	2,200	2,200
Defense Support	689	865	750	871	885	800
Atomic Energy Commission	2,362	2,418	2,720	2,275	2,550	2,620
Stockpiling and Defense Production Expansion	.....	70	3	625	422	425
Total	**41,139**	**44,798**	**46,066**	**44,957**	**46,336**	**46,845**

[1] Additional obligational authority available by transfer: 1958, $582 million; 1959, January estimate, $325 million; 1959, current estimate, $535 million.

[2] Additional obligational authority available by transfer: 1958, $8 million; 1959, January estimate, $20 million; 1959, current estimate, none.

budget balance can be achieved not by cutting defense spending but rather by preventing it from climbing any further.

Actually, the inflation factor has amounted in the case of the defense program to about 20 percent over the last four or five years. Defense officials would be happy if spending could be held to an increase of about $1 billion in the next fiscal year. This would mean that the "hold-the-line" operation was successful in their eyes, since spending in fiscal 1959 will be up about $1.8 billion over actual 1958 spending.

Most of the increase expected in fiscal 1959 is in the research and development area, with a $389 million decrease in spending for major items of procurement and production.

Actually the procurement picture is somewhat better than the figures indicate. Supplementary budget requests by President Eisenhower reduced the planned cutback in expenditures for major military items by $525 million, largely for aircraft, nuclear-powered ships and missiles.

Administration May Try Again to Boost Avgas Tax

The Administration will again ask the Congress to pass an increase in the aviation gas tax in the next session. Budget Director Maurice Stans sees this proposal as part of the continuing drive to force users to pay at least some part of the cost of services rendered by the Federal Government.

This means that the proposal for the aviation gas tax increase would be part of President Eisenhower's legislative program to be transmitted to Capitol Hill early next year. Whether any other user charges would be imposed on the aviation industry hasn't been decided yet. However, in the drawn-out battle to get a balanced budget, it can be expected that the Administration will look at other proposals to cut down on the cost of airways modernization and airport aid.

Some sign of the current attitude can be found in the statement that President Eisenhower's vetoes, including the airport aid bill, held down potential deficits in fiscal 1959 and fiscal 1960 and later years by between $1.6 and $1.7 billion. These vetoes included the airports bill.

From PNYA—Big Noise on Jets

A smoldering, behind-the-scenes jet noise debate has flared into the open in the New York area with reverberations louder than any the jets might possibly make when they enter service this year.

As a result, what started as an intra-industry disagreement on jet noise has mushroomed beyond the confines of aviation. It has emerged as an issue of public debate in the daily press with only one outcome evident from the beginning: Aviation will suffer.

The row was touched off in July but didn't blaze openly until early this month when the contents of a July 23 letter from the Port of New York Authority to some 20 European airport operators became public knowledge. The "My Dear Colleague" document, penned by PNYA's executive director Austin J. Tobin reportedly discussed in detail the Boeing 707 noise situation and stated flatly that it could not meet noise level standards.

A counterattack, apparently stemming from aviation sources hurt by the Port Authority action, brought a series of feature articles in the New York daily press, some highly critical of PNYA officials.

The New York *Daily News* quoted one unnamed airline official as saying Tobin's letter was a "double-cross—morally wrong, unjust from every viewpoint of decency and ethics." Another observed, "The letter has burned the industry to a cinder and discussions are being held on the legal right of the Port Authority to prohibit the operations of any commercial airline."

Reporters in general failed to get PNYA officials to explain the Tobin letter in the light of subsequent public statements made as recently as early September that "it would be unfair at this time to prejudge the 707 . . ."

But the impact of the Port Authority's action extended far beyond the areas involved in its local debate. The effects are viewed by some as not only detrimental to the U.S. airlines and U.S. aircraft manufacturers, but as sabotaging U.S. leadership in the jet age.

Had the July 23 letter been the only aggressive action by PNYA to stir concern about 707 noise, industry critics indicated they would accept the Tobin document as an error in judgment.

However, this was not the case; hence the observation that the Port Authority, failing in the U.S., was deliberately acting to gain foreign support for its anti-jet campaign to the detriment of the industry it is supposed to serve.

This stand was based on reports that the Port Authority during June sent its consultant, Dr. Beranek, to the Western European Airport Council meeting and presented a series of sound tapes supposed to represent the 707 at varying gross weights and altitudes. When inaccuracies subsequently were pointed out by Boeing engineers to PNYA officials, including Tobin, they reportedly agreed to the errors and admitted privately, but not publicly, that the presentation was a mistake.

However, reliable sources indicate this admission took place less than a week before the Tobin "My Dear Colleague" letter, a factor that apparently led to the industry charges of "double-cross."

One of the big problems facing industry, however, is how to offset the effect of the information presented to the Europeans on the 707. There is no report of an effort on the part of

De Havilland Aircraft of Canada Ltd. photo

De Havilland Caribou Set for Army Evaluation

DHC-4 Caribou prototype makes a low pass following successful hour-long first flight and several landings. Designed and built by De Havilland Aircraft of Canada, Ltd., the new STOL passenger/cargo transport will be evaluated by U.S. Army, which has placed an initial order for ten aircraft. Powered by two 1,450 hp Pratt & Whitney R2000-7M2s, Caribou has a cruise speed of 183 mph at 7,500 ft., maximum range of 1,350 miles. Dimensions are: wing span—96'; length—68' 9½"; height—31' 9½".

PNYA to rectify this injustice when obviously the surest way of clearing the air would be via such retraction. Airlines and manufacturers feel they eventually can overcome this unexpected setback but only at great expense beyond the millions already invested in noise suppressors and testing.

Equally as big a problem is what the Port Authority's actions will do to the cooperative effort by manufacturers to make noise data available. Although Boeing officials refuse to comment, it is understood that the alleged PNYA misrepresentation of its aircraft in Europe has virtually closed the door on future direct dealings. If Port Authority officials want noise data in the future, presumably they will have to wait until their customers get the aircraft and can supply such information.

The third big problem concerns what the noise ruckus will do to future relations between the Port Authority and the airlines. Officials of American and Pan American, both mentioned in the "My Dear Colleague" letter, are understood to have accused Tobin of misquoting them. Whether or not this proves the case, it is obvious that working relations between PNYA and the airlines will suffer.

But the big mystery to all concerned in the issue seems to be: "What is the Port Authority trying to prove." Ever since the first orders for jets were placed, no one among airlines or manufacturers has pretended that jets are not noisy.

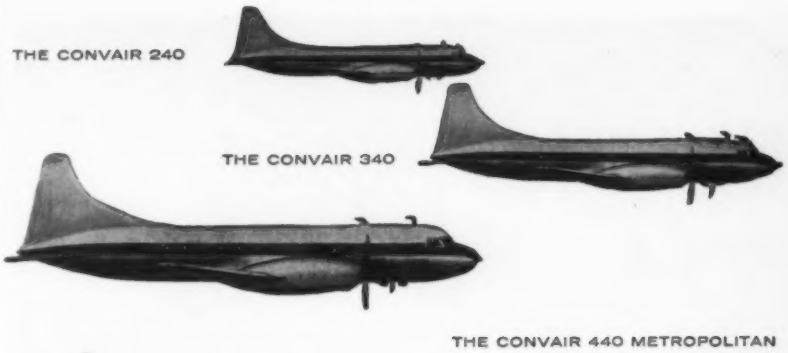
The airlines specified in their contracts that the jets could not exceed the highest of prevailing piston noise levels. The manufacturers spent millions (at Boeing the price exceeds $12 million) to develop and test suppressors.

But with this action, the discussion has shifted to one of acceptable noise levels and the question, "What is acceptable?" This is where aviation observers feel the PNYA is overstepping its bounds.

They point out that the noise level acceptability applies to the public throughout the U.S., not solely to the public in New York.

To date, of all U.S. airports slated for jet operations, only the PNYA has refused jet operations. Other East Coast cities, anxious for the service, express the hope that the Port persists in its stand and diverts international traffic their way. But they are quick to admit that this is by no means the solution.

The way out now, most observers admit is a difficult one. But, they add, it is one that must be decided upon at top levels of the airlines and PNYA or New York State government before the multi-billion dollar U.S. investment in the jet age is irrevocably damaged.



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CRC 839

707 Gets Leading-Edge Flaps

Boeing has added leading-edge flaps to its Boeing 707 jet airliner. After 18 months of testing, Boeing says the flap, which operates in conjunction with the normal trailing-edge flap, permits the maintenance of performance at high angles of attack. The 707 prototype was used in the company's test program.

TV in DC-8 Simulators Reveals

The cockpit of the Link Aviation simulator version of the Douglas DC-8 features the added realism of visual representation. A closed-circuit television sys-

British Fighter Incorporates Area Rule and Split-Tail Air Brake

The Blackburn NA.39 low-level strike aircraft is seen in the first released air-to-air photograph. The airplane incorporates the now-famed area rule with a novel design split-tail air brake. First showing of the NA.39 was at Farnborough where it made a fly-by. For security reasons, the airplane did not land at Farnborough but used nearby Boscombe Downs as its base.

imulads Realism

tem projects the image of an airport, onto a screen which is suspended in front of the pilot's windshield. The first unit has been delivered to United Airlines, and is now in use.

Two Engines, Two Fuels

One airplane with two engines running on different fuels was flown recently at Olathe, Kansas Naval Air Station. The demonstration was designed to show the ability of the Westinghouse J34-WE-46 to operate on either JP4 or JP5 fuel. The plane is a McDonnell F2H Banshee.

Navy's Photo-Reconnaissance Plane Takes Pictures for Hours

"Flying Photographer" is Navy's A3D-2P carrier-based, Douglas-built airplane is designed to provide 24-hour photo reconnaissance. The twin-engined jet is able to take continuous film footage for several hours at a time. Camera ports are visible on the sides of the fuselage which have provision for alternate cameras. Production is under way at El Segundo, Calif.

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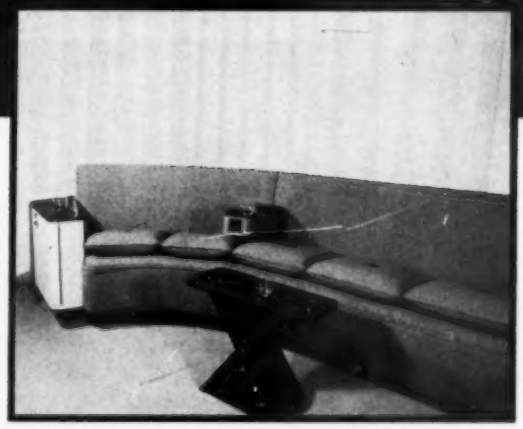
Meet Any Airline Requirements



Luxurious and functional in every detail, the new custom lounge of the Boeing 707 (large picture) and the Douglas DC-7C (smaller picture) are two of the many types created by AiResearch Aviation Service to meet individual requirements of the world's leading airlines.

Personalized custom lounges are designed and fabricated by AiResearch engineering specialists and interior stylists. Modern facilities comprising more than 150,000 square feet of floor space include a complete engineering department and the finest precision sheet metal, upholstery and cabinet shops.

AiResearch designs and builds complete airline interiors for first class, tourist or convertible cargo-passenger configuration. Custom lounge furnishings, colors, fabrics and seating arrangements are also done to your specifications.

AiResearch has installed custom interiors and lounges for American, Braniff, CPAL, Hawaiian, Japan, KLM, Panagra, Pan American and Swissair...flying Boeing, Convair and Douglas airliners.

Your inquiries are invited.

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Airports—Aviation's Underdog

An American Aviation Staff Analysis

"Of all elements in our national system of aviation facilities, airports have been the most neglected," said President Eisenhower's Special Assistant for Aviation Facilities Planning, E. P. Curtis, in his report to the President in May 1957.

Curtis added: "Unless airport development is given the attention it deserves, airport capacity may well become the factor that limits capacity in the whole system."

When President Eisenhower vetoed the Airport Aid Bill on Sept. 2 he not only ignored the warning and advice of his former Special Assistant, but he threw a roadblock into the orderly planning of airport development. This, in turn, can only result in making airports the bottleneck in the safe and orderly flow of air traffic, unless it is immediately remedied by the 86th Congress when it convenes in January.

The situation was succinctly put by Congressman John A. Blatnik (D.-Minn.), who said of the President's veto: "The same lack of leadership and foresight which characterized Federal action with respect to air navigation and air traffic control facilities is now unfortunately obvious in the field of airport financing." He asked: "What benefit do we derive from a $1.25-billion air traffic control and navigation system planned up to 1963 if our airports are inadequate?"

• **Why President vetoed bill**—Why did the President veto the Bill which the Senate passed unanimously, the House passed by a vote of almost 4 to 1, and which the whole aviation industry unanimously urged as vitally needed to the development of U.S. aviation?

The reasons appear to include these:

It has long been an open secret that the Commerce Department has kept the lid on the Civil Aeronautics Administration and the urgently needed development of aviation facilities. Former Administrator Fred B. Lee got fired because he wouldn't accept the "railroad" thinking of his superiors. Administrators Charles Lowen and James T. Pyle have succeeded only to the extent that spectacular crashes, such as Grand Canyon, forced the Administration to do something about air traffic control and air navigation facilities.

The brightest spot in Administration thinking came when Curtis carried out his comprehensive survey of the need for aviation facilities planning and laid down a blueprint of Administration policy.

But even that was ignored until spectacularly tragic military/civil crashes again roused Congress to initiate action on the Curtis-recommended Federal Aviation Agency.

• **Rothschild opposes federal participation**—Former Under Secretary of Commerce Robert Murray cut off all airport development funds under the Federal Airport Act back in 1953. In 1955 the House Appropriations Committee voted $22 million when the Commerce Department again failed to request any airport construction funds.

Yet, Louis Rothschild, Murray's successor, during his testimony this year before the House Commerce Committee, freely admitted that:

• Airport improvements which have been made under the Federal Airport Act have been "eminently desirable."

• "The airports are an integral and important part of the whole airway system."

The extent of the inconsistency in Administration thinking is readily apparent in the Presidential "Memorandum of Disapproval" itself. Items:

1.—Although Rothschild flatly opposed in both the Senate and the House any federal participation in an airport program, Eisenhower said that "At the next session of the Congress, the Administration will recommend a transitional program to provide aid for the construction of urgent airport projects . . . essential to an adequate national aviation facilities system."

2.—When the Administration said that "more and more airports have progressed to the point of self-sufficiency," it failed to point out that this relates only to day to day operating sufficiency—that is, current revenues which equal or exceed current operating expenses—but does not include *capital improvement* requirements or debt service and amortization of debts already incurred.

3.—When Eisenhower said that "well over $1 billion has been allocated by the Government to the construction and improvement of local civil airports," he failed to point out that nearly $800 million of this was for "make work" programs of the depression thirties and the crash-defense landing area programs of 1941 and 1942, neither of which have any real relationship to civil aviation in 1958.

4.—When he said that "over 500 military airport facilities have been declared surplus and turned over to the cities, counties, and States for airport use," he failed to point out that by 1945 429 civil airports had been turned over by local governments to the Army and Navy in the interests of National Defense and that, even today, more than 200 civil airports are being jointly occupied by military units.

5.—The President failed to point out that nearly all basic aeronautical research by the government has been conducted for military reasons and that the airways system is as essential to control military traffic as civilian.

• **Lack of leadership?**—Administration leadership in civil aviation has left something to be desired.

The Administrator of Civil Aeronautics can't be a leader because his boss won't let him. The CAB can't be a leader because it doesn't administer the funds needed for aviation facilities improvements.

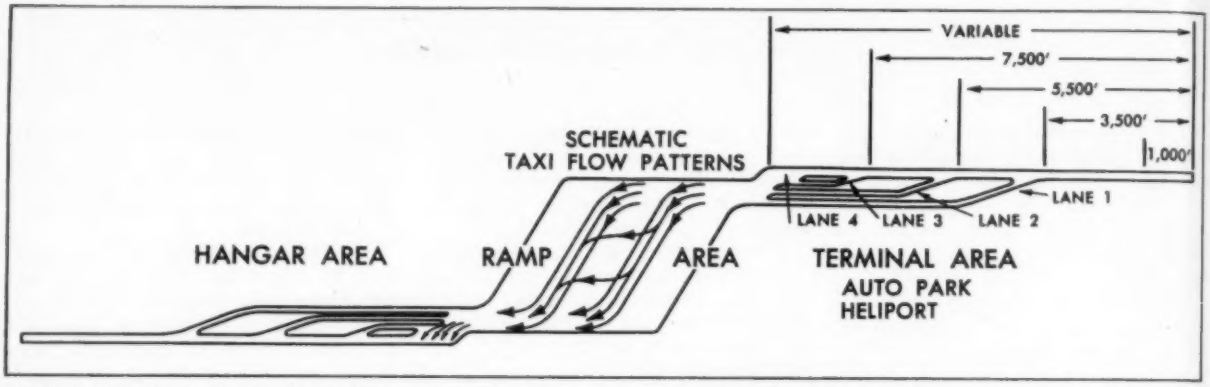
The office of the Special Assistant to the President has the greatest prospects for leadership, but its influence was either not used to obtain Presidential approval of the Airport Bill, or else its influence was not sufficient to counteract the Commerce Department. The one office in the Executive Branch of the Government that had been looked to for aviation leadership failed. Whether the Federal Aviation Agency Administrator will be more potent remains to be seen.

Airport Design for the Jet Age . . . An

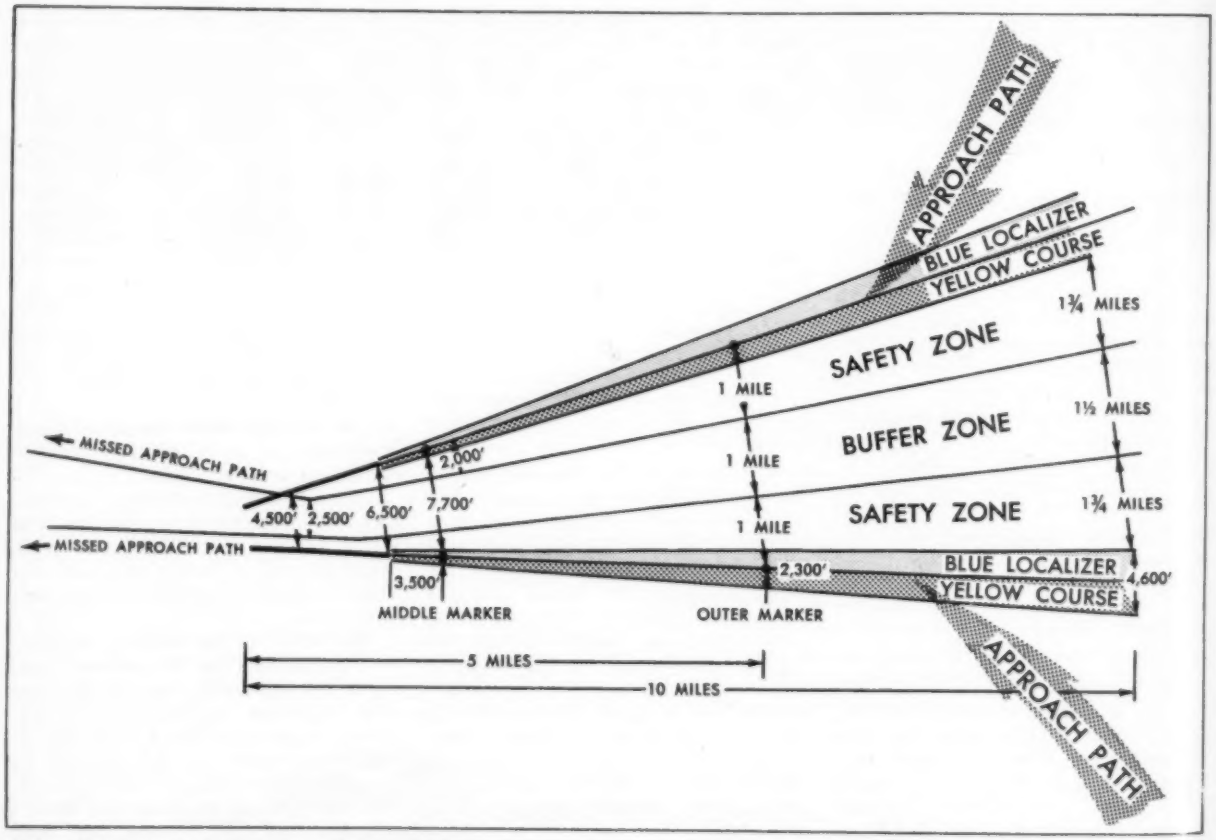
By G. C. Miller

Civil jet transports now coming into the proving phases of air carrier operations will find relatively few airports ready to meet their radically new requirements.

Radical changes in airport designs are in order. For example, modern transport and military aircraft have crosswind landing capabilities far in excess of aircraft built before the tricycle landing-gear concept. Most transports are certificated for crosswind operations in components of 20 to 30



ASSUMING THAT (1) aircraft on final approach will not be permitted to pass the middle marker; (2) minimum allowable separation on final approach is 60 seconds; (3) average touchdown is 1,000 ft. from runway threshold, the solution follows: (1) first aircraft touches down 18 seconds after passing marker; (2) second aircraft reaches middle marker 42 seconds after first; (3) averaging 70 kts., first aircraft travels 4,664 ft. in 40 seconds and (4) possible turnoff point is 5,664 ft. from threshold.



ONE POSSIBLE SOLUTION to the companion runway requirement. The safety factors have been generously applied. It will be noted that the convergence angle is 20° while the distance between outer markers is three miles, the distance between middle markers is 7,700 ft. and the distance between missed approach path centerlines is approximately 4,500 ft. The distance from the ramp area to the takeoff positions of the companion runways is 3,000 ft.

The Future

mph. (One is certificated for 40 mph.) And the coming jet transports may be approved for 30 to 40 mph crosswind components.

Capabilities such as these invite drastic changes in airport designs with a resulting increase in operational capabilities: Fewer runways; less acreage; simplified, shorter and vastly more economical taxi patterns, and many other increases in overall efficiency.

It is now possible to orient the dominant runway system with the prevailing wind and to eliminate the previously required multi-directional runway system. In the event that local wind rose data indicates high velocity side winds which exceed the allowable crosswind component, a secondary runway system oriented to meet this condition usually will provide coverage better than the required 95 percent.

Airport design studies in several localities in the U.S. indicate that in these places a single direction runway system will give 98% coverage for a 25 mph crosswind component (see table below). For instance, we made feasibility studies for two fields in Maryland where the type of using aircraft required a 15-mph crosswind component. Analysis of wind rose data taken at nearby Andrews AFB and Friendship Airport revealed that runways oriented 090°/270° and 110°/290° would give a coverage of 97.1% for a 15-mph crosswind component. These two directions would have given 99.9% coverage for a 25 mph crosswind component. Studies in other areas revealed:

Location	Runway Orientation	% of Coverage
Buffalo, N.Y.	045/235	99.3
Coatesville, Pa.	125/305	99.2
Lancaster, Pa.	090/270	98.6
Atlantic City, N.J.	125/305	98.7
Friendship, Baltimore, Md.	110/290	98.8
Andrews AFB, Washington, D.C.	110/290	99.8
Moody AFB, Valdosta, Ga.	a. d.	100.0
Macon, Ga.	160/340	99.5
Augusta, Ga.	140/320	99.6
Savannah, Ga.	090/270	99.2
Montgomery, Ala.	125/305	99.0
Evergreen, Ala.	a. d.	100.0
Mobile, Ala.	135/315	98.4
Pensacola, Fla.	360/180	99.2
Milton, Fla.	165/345	99.6
Tallahassee, Fla.	a. d.	100.0
Jacksonville, Fla.	060/240	98.7
Orlando, Fla.	a. d.	100.0
Meridian, Miss.	a. d.	100.0
Houston, Tex.	135/315	100.0
Long Beach, Calif.	a. d.	100.0

a.d.—Any direction.

• **The general layout**—Our designs for civil and military fields where high acceptance rates are required follow the general pattern shown in the drawing below.

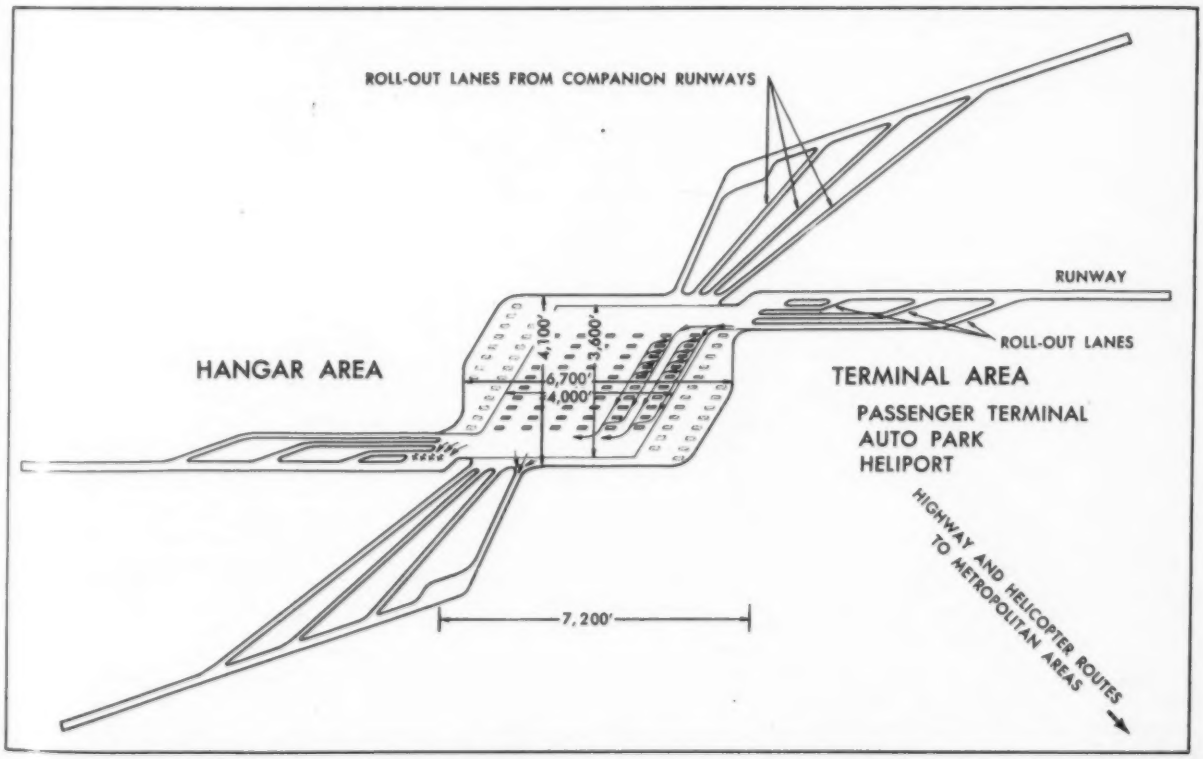
The length of the dominant runways varies with altitude, average hot temperatures and the takeoff capabilities of using aircraft. The runways are laid out on a staggered parallel configuration, landings being made toward the ramp area and take-offs away from it. This results in not only the very minimum of taxi distances but permits simultaneous landings and take-offs. Current thinking regarding safety requirements indicates that the minimum distance between the centerlines of these runways should be about 3,000 ft.—with each runway served by a number of high-speed turn-off lanes.

• **High-speed "roll-out" lanes**— These turn-off lanes are not "taxiways" in the accepted sense of the word, but rather are high-speed "roll-out" lanes. It is essential that the "roll-out" be accomplished with the minimum use of brakes and blasts of power.

The older method of connecting the runway and its single parallel taxiway with turnoff lanes is unacceptable in this concept, since it can result in several aircraft traveling on collision courses at relatively high speeds. Further, slowdowns or delays along a single taxiway could soon result in blocking it for arriving aircraft.

The roll-out lanes are spaced to permit turnoffs at speeds of 50-60 kts. The controlling requirement is that landing aircraft must clear the runway before the following aircraft reaches its last safe "wave off" position on final approach.

(Continued on page 28)



THE ULTIMATE DEVELOPMENT, with 92 loading positions, will have an IFR capacity of 200 operations per hour. The hangar area and the terminal area may be expanded to any required extent without conflict with air safety requirements.

The location of a point at which a single high-speed roll-out lane should leave the runway cannot be determined since most of the factors in the solution are variable. Therefore it is necessary to design a system of lanes that will satisfy the varying requirements.

With this proposed layout, taxi patterns from the entrance to the ramp area to the takeoff position can be set to permit a smooth flow of traffic with no "opposite direction" paths and as few crossing paths as possible. No turn of more than 60° should be required and the only crossing occurs when an aircraft arriving in an outboard lane desires to turn into a taxiway before another aircraft arriving in an inboard lane.

• **About the terminal area**—The choice of terminal area configuration is of extreme importance where acceptance rates of 40 to 100 aircraft per hour are demanded and the using aircraft will be about 30% turbojet, 30% large-piston and turboprop, 30% medium-piston and 10% smaller aircraft.

It appears that the only feasible solution is to provide fixed loading positions properly spaced on the ramp and to route passengers, materials and services such as fuel, power or other necessities through an underground network between the terminal building, hangar area and the individual loading positions.

Further, it is essential that aircraft be able to move through the ramp area to and from their loading positions with the very minimum of sharp turns, stops and opposing aircraft traffic. It is also essential that vehicular traffic be eliminated from operation in the vicinity of aircraft moving or at rest.

The schematic layout shown illustrates this concept. Dimensions of the loading positions are about 200 ft. x 200 ft., while the structures adjacent to each are some 50 ft. x 200 ft. These structures provide the means of transferring persons and materials from the underground level to the loading level and provide space for required servicing equipment. Traffic flow within the ramp area follows a smooth one-way pattern with no meeting or crossing traffic.

There are double traffic lanes between each tier of loading positions. This permits aircraft to enter and leave their respective loading positions freely. All turns are 60° and on long radii.

• **What about expansion?**—The number of loading positions required or contemplated for future use will determine the overall dimensions of the ramp area. The configuration illustrated provides 54 loading positions, which may be increased to 92 without change in the basic configuration. The 54-position ramp and its associated feeding taxiways is 3,600 ft. x 4,000 ft., while the ultimate 92-position facility is 6,700 ft. x 4,100 ft.

When the peak load traffic at an airport materially exceeds the acceptance rate of the facility, two solutions are possible. One is to build a second airport at least 16 miles away. This would involve great expense and the resulting downgrading of service where there is an appreciable volume of passenger and cargo exchange between air carriers. The other solution is to provide additional runways designed for simultaneous use and to increase the number of loading positions and other servicing facilities.

At older airports designed for multidirectional operation, it is difficult and often impossible to provide an additional instrument runway for simultaneous use.

The modern design being discussed has double the capacity of the older single instrument runway field. Further, it has provisions for doubling its capacity by adding two companion runways, additional loading positions and other necessary increases in services.

• **Safety and distances**—The basic considerations which govern the design of the additional companion runways are safe separation of the final approach paths, safe separation of the missed approach paths, and reduction to the minimum of taxi distance from the ramp area to takeoff position on the companion runways.

In order to determine the minimum safe distance between parallel or converging runways used for simultaneous landings, it is necessary to know the maximum deviation from the approach paths which may occur.

Approaches made on the ILS and PAR systems under normal conditions are very precise and can be expected to stay within the limits of the localizer course. Likewise, missed approaches can be expected to stay within plus or minus 1,000 ft. from the centerline. Abnormal conditions such as extreme turbulence, high variable crosswinds, below average pilot ability and other causes may result in inaccurate or erratic flight paths.

It is believed that a buffer zone a mile wide to the outer marker, and 1,000 ft. wide from the middle marker parallel to the missed approach path should encompass all of the erratic flight paths that may be reasonably expected.

The thinking of traffic control authorities and others who have made careful studies of the subject is fairly firm in regard to a 3,000-ft. centerline separation of missed approach paths and a two to three-mile separation of approach paths at the turn-on point, which is at or beyond the outer marker.

About the Author

Capt. George C. Miller is an airways engineer with the consulting firm of Thomas B. Bourne Associates, Inc. Before retiring from the Navy to join the Washington, D.C. consulting firm, Capt. Miller served as Navy member of the Air Navigation Development Board. ANDB was the forerunner of the Airways Modernization Board.

Pyle on Airports

Tells Mayors' Conference careful planning is vital

CAA Administrator James T. Pyle has urged municipal cities to prepare a current master airport plan so that their airports may be developed in stages to meet advancing technologies.

Addressing the U.S. Conference of Mayors in Miami Beach recently Pyle warned that those responsible for planning of municipal airports can do a community a serious disservice by developing a trunk-type airport for a city that can support only a feeder operation.

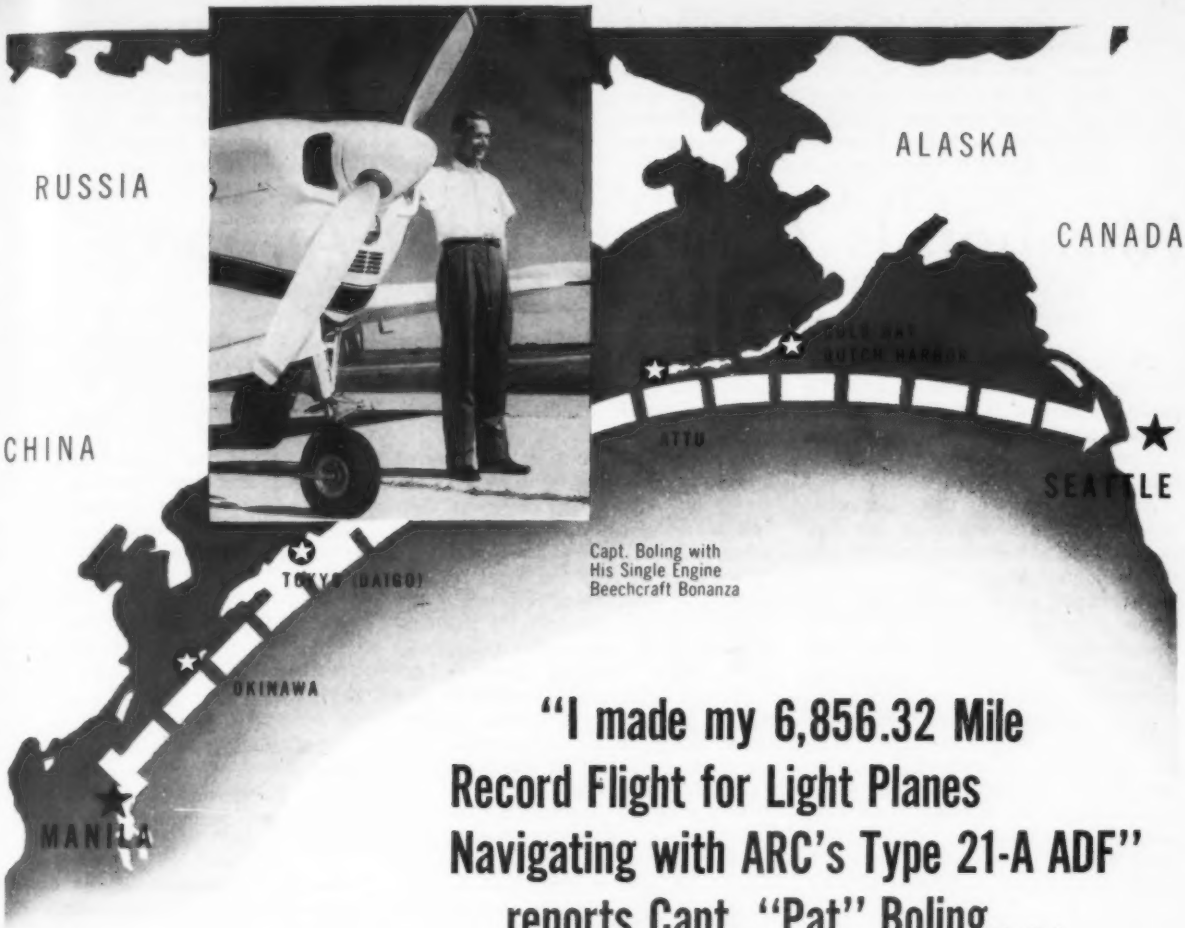
Of course, he added, the opposite is true if a major city does not plan to capitalize on its full traffic potential.

Pyle referred briefly to the President's veto of the airport aid bill and the transition program to be proposed in its stead, but said it was impossible at this time to say what that program will contain.

The CAA forecasts that by 1960 traffic will increase to 60 million passengers per year; that by 1965 those figures will zoom to 93 million and by 1970 they will swell to 118 million. However, he said, the increase in traffic raises many serious questions which highlight the necessity of good airport planning. This is an area in which the CAA can help, said Pyle. He urged each community to prepare a master plan so that its airport may be developed in stages to meet the requirements "as technology marches on."

CAA will help in the construction phase of such planning, he said, but the local communities must do most of their own financing.

Pyle also said CAA's new technical standards will indicate fewer categories of airports than today's six (see pages 34 & 35), which should reduce the number of requests for changes in the National Airport Plan.



Capt. Boling with His Single Engine Beechcraft Bonanza

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On August 1st, 1958, Captain Marion ("Pat") Boling landed at Pendleton, Oregon, after a non-stop flight from Manila, P. I.—a distance of 6,856.32 miles in 45 hours and 42 minutes, thus establishing a new long distance record for light aircraft. His plane was a single engine Beechcraft Bonanza.

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Circle No. 122 on Reader Service Card.

In February an $8-million Air Force B-52 bomber crashed at Ellsworth AFB and the cause was traced directly to contaminated fuel. Of the large number of military aircraft accidents this year, the exact number originating with fuel contamination cannot be traced. But it is well established that the military is having its share of flameouts, forced landings and major accidents from this cause, a situation that raises a big question as to how the commercial airlines expect to approach this problem with their jets. Irv Baldwin, a name well known in the field of fuel filtration, supplies his answer here.

Filtration Is A Must at Jet Airports

By I. W. Baldwin
Bowser, Inc., Chicago

The big new jets are on their way into use by the airlines in commercial passenger service at a time when the military services are reaping the first real benefits from a "hard way" education in jet fuel cleanliness.

And the success of these jets could depend to a large degree on just how close a look airline managements take at this military experience.

The major oil companies who will supply aviation kerosene can deliver "specification" jet fuel into airport bulk storage tanks. But at that point their responsibility normally ends.

And there are those in airline organizations today who have responsibility for fuel and fuel handling procedures who do not recognize the vast difference between jet fuel and avgas contamination. They know little of the more difficult problems to be faced in removing contaminants from jet fuel.

• All agree on kerosene, but . . . The U.S. carriers without exception have selected kerosene as the fuel to power their turbine engines. There is no question but that kerosene is the safest of jet fuels in use today. But there is just as positively no question that kerosene is the most difficult of the jet fuels to clean and keep clean until it sprays from the nozzle of the engine combuster.

Kerosene and other jet fuels are of higher specific gravity than avgas. They are of higher viscosity and more difficult to free of entrained and emulsified water.

But water is only one aspect of fuel cleanliness. An equal offender, also more serious in jet fuels, is the contamination by iron oxide (rust) and other solids. Aviation kerosene not only has an unparalleled ability to pick up rust present in all fueling systems, inside storage tanks and pipelines, but one of retaining it in suspension for indefinite periods.

In one of the most provocative talks yet delivered on fuel cleanliness, Paul E. Lamoureux of Trans Canada Air Lines has pointed out that a water globule that will settle in avgas in 59 minutes will take 10 hours and 9 minutes in kerosene. A 5-micron dirt particle will settle in 40 minutes in avgas, 3 hours in JP-4 and 6 hours in kerosene!

And rust particles are infinitely smaller than those normally found in avgas, hence will pass through the five to 10-micron "micronic" filters that have been considered adequate for aviation gasoline.

A look at test solids (see table) using AC dust for avgas and Fisher I-116 iron oxide for jet fuel gives a clearer picture of the relative sizes of particles for removal.

A.C. Dust		Fisher I-116
Size	Weight	Weight basis only
0 to 5 microns	12%	Less than 10 microns—100%
5 to 10 microns	12%	Less than 5 microns—98.9%
10 to 20 microns	14%	Less than 1 micron—94.1%
20 to 40 microns	23%	Less than 0.5 microns—77.7%
40 to 80 microns	30%	Less than 0.25 microns—44.8%
80 to 200 microns	9%	

Obviously, the so-called micronic filter that removes contamination of five to 10-microns in avgas would be useless for removing contamination that is smaller than 5 microns.

• Jets very thirsty engines—Another fundamental feature of jets is their thirst for large quantities of fuel, six to seven times that of piston engines. This means that in handling kerosene, operators must provide filter-separators

Contamination: As Viewed by TCA's Lamoureux

(Extracts from a paper by Paul Lamoureux, Trans-Canada Air Lines, before American Petroleum Institute)

"What may have been perfectly safe and permissible in our handling of avgas at low rates of flow may be marginal or even dangerous for kerosene at 1,200 gallons per minute."

"What may have been economical and efficient in fueling a $1 million aircraft may be totaly unacceptable for a $5 million DC-8 airliner."

. . . JP-4 vs Kerosene Lubricity

"It is only fairly recently, as a result of extensive investigations, that we were able to remove this 'red herring' from the scene and recognize the (Viscount fuel pump) problem for what it really is: Abrasion and mechanical wear resulting from the presence of unacceptable quantities of abrasive contaminants in the fuel."

"The TCA Viscount fuel problem is a serious one; it is all the sadder because it could have been prevented. It demonstrates very well what can happen if we let ourselves be trapped into thinking that turbine fuels can be handled as just another grade of avgas."

"The place to rid the fuel of objectionable contamination is in the ground installations where the job can be done cheaply and efficiently."

Here's how TCA's Lamoureux compares the vital statistics affecting fuels of present Canadair North Stars with the carrier's upcoming Douglas DC-8s:

Type of Fuel	North Star 100/130 avgas	DC-8 JP-4 or kerosene	Multiplying Factor
Specific Gravity	0.70	0.80	1.14
Fuel Capacity	3,000 gals.	18,000 gals.	6.00
Fueling Rate	250 gpm*	1,200 gpm*	4.80
Engine	R-R Merlin	R-R Conway	....
Cost of Engine	$17,000	$187,000	11.00
Engine Overhaul	1,500 hrs.	1,500 hrs.	1.00
Overhaul Cost	$7,850	$35,815	4.58
Fuel Consumption/Engine Per Overhaul	88,930 gals.*	620,000 gals.*	7.00
Dirt Digested/Engine Per Overhaul**	2.94 lbs.	20.5 lbs.	7.00
Fuel Pressure	30 psi	1,200 psi	40.00

* Imperial.
** At 15 mgms per imperial gallon.

of higher efficiency than in the past and it must be equipment that will handle both the higher rates of flow and much greater total quantities of contamination.

This leaves carriers no recourse but to investigate and procure decontamination equipment of the highest possible efficiency. Performance requirements of past specifications are not good enough and Navy experience has shown that the iron oxide test contaminant is needed for determining the adequacy of filters.

The current trend in the Navy is to require use of Fisher I-116 iron oxide contaminant for tests because it is a realistic example of what exists in jet fuels.

How does an airline tackle the filtration situation? Capital Airlines, in its Viscount operations, has found an answer that has kept it clear of in-flight troubles with contaminated fuel for four years. Patterning its operation after the military, Capital follows two basic principles in filtration:

First, it provides that kerosene fuel must be filtered every time it is moved from one point to another. It must be filtered when it is delivered into the airport supply tanks, whenever it is transferred, and finally when it is delivered into the aircraft.

Second, it uses depth-type filtration such as provided by glass fiber cartridges to remove iron oxide contamination and separate all water from the fuel. Unless this is followed, kerosene fuel will pick up extremely fine rust contamination and accumulate it to a degree beyond the removal capacity of downstream filters.

Unfortunately, kerosene fuel by its nature doesn't stay clean once it is thoroughly filtered and hence the problem shifts hands. From airport storage to aircraft delivery, the airline or fueling contractor faces the problem of jet fuel cleanliness.

The tools are now available in the form of efficient filter-separators. But how well the airlines choose them and how well they use them could be a prime factor in their success.

About the Author

I. W. (Irv) Baldwin, staff representative for Bowser, Inc., is a pioneer in aviation fuel systems and fuel handling equipment. A licensed pilot, Baldwin is a former manager of the aviation division of Bowser and a former consultant on aircraft fueling to the Department of Defense.

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Range	0 to 10" Hg Vac.	.5" H_2O to 55 PSI	0 to 50 PSI	0-20 Low 68-100 High
Set Point Tolerance	±0.25" Hg	±0.25" H_2O	±0.25 PSI in Low Range	.5 Low; 1.0 High
Electrical Requirements	12 or 24 Volts	28 Volts; 0.45 Amp	12 or 24 Volts	12 or 24 Volts
Contact Capacity—Resistive Load at 24 Volts	.5 Amp	10 Amp Continuous	.5 Amp	.5 Amp
Temperature Range	−55°C to +70°C	−55°C to +70°C	−55°C to +70°C	−55°C to +70°C
Weight	.5 lb.	1 lb.	.6 lb.	.6 lb.
Contact Arrangement	SPST NC	SPST NO	SPSP NC	SPDT

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For Jets and Turboprops: CAA Propose

To obtain better correlation between the design of airports and the design of turbojet and turboprop aircraft which will be coming into air transport service, the Civil Aeronautics Administration has proposed certain changes in standards for runway dimensions and strengths. These changes have been incorporated in draft Technical Standard Order-N6b which has been circulated to industry for coordination purposes. Principal change proposed in present runway criteria for airports participating in the federal airport aid program is in the reduction in categories of airports. While the latest revision would cut in half the number of airport classifications established for purposes of air carrier operations, it is likely that provision will be made to give consideration to airports with less than trunk-type needs before the TSO is finalized.

The number of movements at any particular airport will remain the standard for judging installation of such facilities as traffic control, landing, approach, lighting, and radar. Distribution of these and other navigational aids is also being considered by CAA.

Airport Classification	Runway Length[1] (feet)		Runway Width (feet)		Taxiway Width (feet)		Landing Strip Width (feet)		Pavement Loading (pounds per wheel x 1000)			
									Present		Proposed	
	Present	Proposed	Present	Proposed	Present	Proposed	Present	Proposed	Single Wheel	Dual Wheel	Single Wheel	Dual Wheel
Intercontinental Express	8,400	.....	200	.....	100	.....	500	.....	100	125	.....	
Inter-continental	7,000	10,500	200	150	75	75	500	500	75	100	100	All load based on single w
Continental	5,900	7,500	150	150	75	75	500	500	60	80	75	All load based on single w
Express	5,000	.....	150	.....	60	.....	500	.....	45	60	.....	
Trunk Line	4,200	6,000	150	150	50	75	400	500	30	40	60	All load based on single w
Feeder	3,500	.....	150	.....	40	.....	300	.....	15	20	.....	

[1] Established for sea level elevation and no gradient.

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Changes in Runway Specifications

Control Tower		Airport Surveillance Radar		Precision Approach Radar		Instrument Landing System		High Intensity Lights		Remarks on Proposal
Present	Proposed	Present *	Proposed	Present	Proposed	Present	Proposed	Present	Proposed	
equip-		All but one now equipped.		3 now in service.		All presently equipped.		All but Oakland, Detroit Metro., and Duluth now equipped.		To be incorporated in intercontinental category.
equip-		20 now in service.	103 provided for in all categories through '58. Ultimately all will be equipped.	5 now in service.	25 on way, all categories. Future uncertain. Function may be served by ASR, ILS combination.	All but Phoenix and Las Vegas equipped.	No plans to install units at clear-weather fields.	In operation at 22 of 29 ILS equipped fields.	Will eventually be installed at all ILS equipped airports.	
equip-		12 now in service.	Ultimately installed at all fields.	One in present.	Uncertain installation scheduled only in high-density areas.	All but West Palm Beach, Tucson, St. Petersburg, Rochester, Minn. and Reno equipped.	No plans to install units at clear-weather fields.	Installed at 12 of 20 airports having ILS. None at others.	Will be added to ILS fields without equivalent facilities.	
equip-		None in operation.		None.		49 of 59 express airports now equipped.		In operation at 7 ILS airports.		Incorporated in trunk line.
lly re- based 00 itin- opera- er year.		Colorado Springs only one at present.	Ultimately installed at all fields.	None.	Installation unlikely in near future.	36 now in operation.	More on the way.	Installed at 5 ILS fields.	Will be added to fields not having equivalent lighting.	
lly re- based 00 itin- opera- er year.		None in operation.		None.		None.		None.		To be classified as trunk line airports.

*Some served by nearby CAA operated installations at military bases.

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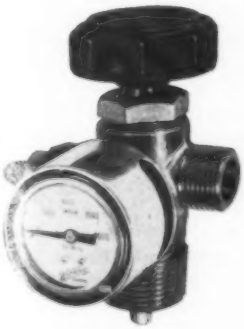

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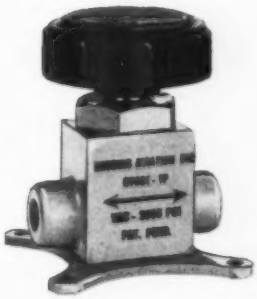

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Camp Wolters—A Helipo

AT CAMP WOLTERS HELIPORT four of these portable runway lights are placed in diamond-shaped arrangement, 150 to 200 ft. from ends of landing lane. Elevated fixtures emit amber glow, enable pilots to "line up" with landing strip at night.

U.S. Army photos

WHAT PILOTS SEE at main heliport when they approach from northwest. At night, portable amber lights are positioned at beginning and end of runway.

AERIAL VIEW of Stage Field No. 2 shows six landing strips. Field measures 2,640 ft. (half a mile) long by 1,350 ft. wide.

The "arrival" of the helicopter as an effective means of air transportation has compounded even more the already complicated requirements of airport lighting.

As a result, aviation lighting engineers are continually experimenting with new runway lighting systems, in order to establish acceptable nationwide lighting standards for heliports.

At present, criteria for lighting heliports is still uncertain. But CAA has made tentative recommendations which provide for:

1. A heliport beacon of not less than 100,000 candlepower in the peak of the beam, to be flashed from 80 to 100 times per minute.

2. Obstruction lights conforming to CAA standard L-810.

3. Landing area marker lights, alternating blue and yellow, 20 to 25 ft. apart in landing and takeoff area.

4. Floodlighting landing and service areas in addition to boundary lights. It is recommended that the lights be placed on circuits separate from boundary lights to permit independent control and the avoidance of glare and false depth perception during landing and takeoff.

5. Lighting of specific operational area (parking aprons, taxiways, etc.) using surface-mounted, semi-flush blue marker lights similar in spacing to those employed in landing areas.

For heliports located atop buildings or other elevated areas, a modified lighting system similar to that outlined above is recommended, using all semi-flush type lights.

Both civil and military authorities are studying the application of these lighting recommendations in various operations, so as to compile sufficient data for standardization. The Army's increasing strategic as well as tactical use of the helicopter has prompted that service to give much time and effort to the problem of heliport lighting.

• What's going on at Camp Wolters— In North Central Texas, Camp Wolters, an Army post specializing in primary helicopter flight training, has been established in line with Department of Defense plans calling for the Army to operate its own aircraft in the combat zone. First underscored during the Korean conflict, the importance of the helicopter has since grown tremendously. Helicopters were used for pick-up and evacuation of wounded, reconnaissance, liaison, and troop-equipment transport. Early this year, the possibility of dropping airborne units by helicopter was investigated.

ighting Clinic

Camp Wolters consists of one heliport and four stage fields, laid out like a gigantic outdoor classroom. The heliport, 1,150 ft. by 1,450 ft., is used principally as a parking area for Hiller H-23 reconnaissance copters—prior to and after training.

For heliport operations, four portable medium-intensity runway marker lights are used at each end of the takeoff and landing strips. These Crouse-Hinds elevated-type fixtures are constructed per CAA specification L-802, using a 30- or 40-watt lamp. Fixture lights are amber in color and placed in a diamond arrangement approximately 150 to 200 feet from the ends of the active landing lane. Lanes are marked off with white lines painted on an asphalt surface comprising approximately one-fifth of the entire heliport area.

By using the diamond-shaped cluster of lights, pilots can "line up" with the active landing lane more easily. Twenty-seven permanent elevated light fixtures (red) are used to mark the control tower, field boundaries and other service areas and operational facilities required for night flying.

• **Stage fields for student pilots**—Stage fields at Camp Wolters are used specifically for student training. Each field consists of a hovering area, control tower, parking area, two taxiways and six landing strips. Spread out over a 2,640-by-1,350-ft. field, the landing strips are surfaced with 2-in. thick asphaltic concrete. Each lane is 1,600 ft. long, 50 ft. wide and is separated from the adjacent strip by 150 ft. of stabilized material. Runways are not lighted as they would be for fixed-wing operations, but are marked by a single blue (elevated) light, permanently fixed 8 ft. from the end of each landing lane.

Two portable elevated fixtures are placed in the center of the strip approximately 150 to 200 feet from each end. With this lighting arrangement the copter makes an approach to the light at the landing end of the lane, hovers to light at takeoff end of the strip, makes a clearing turn and begins its ascent. (This system is used at stage fields only.)

Control center, field boundaries, and strip divisions on the field are marked off by permanent elevated lights (red) centered on the edge of the runway. All lights, both at the heliport and stage fields, are run on series circuits (6.6 amperes).

Since the heliport and stage fields are exposed to both night and day operations, the employment of the lighting system described here requires portable lights for quick and easy removal every morning in anticipation of day-time activity.

Mission of the Army Primary Helicopter School at Camp Wolters is to provide pre-flight, primary and basic helicopter flight training for personnel preparing for an advanced and tactical flight program. In the 12th week of a 20-week course, some six classes of 35 students each are given two hours of night flying training.

Fixed-wing fliers are also given a ten-week course in keeping with the Army's policy requiring 75% of all personnel in the Army Aviation program to know how to fly helicopters.

DAYLIGHT wind sock and signal flag at Stage Field No. 3 at Camp Wolters.

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The smaller twin-spool J-52 is in the medium power range. This 7500 pound-thrust engine is slated to power a new missile, and a new twin-engined attack fighter.

Smallest and newest is the JT12, a simply-built,

rugged, efficient engine that reflects Pratt & Whitney's extensive engine-building experience. The JT12 weighs only 430 pounds, yet due to its advanced design it produces 2900 pounds of dry static thrust. With a single spool and fixed geometry, the JT12 promises outstanding performance, reliability and ease of maintenance for many possible applications.

Meanwhile at Pratt & Whitney Aircraft's research and development centers in Connecticut and Florida development continues on the powerful new J-58 engine, and various aircraft propulsion systems of the future are being explored or developed. When the time comes, they will be ready to take their places as working members of the world's "first family" of power plants for flight.

"FIRST FAMILY" of the jet world now includes four axial-flow jet engines, all pictured here. At left, the famous J-57; with afterburner it develops over 15,000 pounds-thrust. The commerical version (without afterburner) is the JT3. At far right is the big J-75 with afterburner, which produces over 20,000 pounds-thrust. Commerical version (without afterburner) is the JT4. Bottom center is the 7500 pound-thrust J-52. Behind it is the new JT12, appearing almost tiny beside its powerful big brothers.

Pratt & Whitney Aircraft *Division of United Aircraft Corporation*

CONNECTICUT OPERATIONS—East Hartford, Meriden, Middletown, North Haven, Southington

FLORIDA RESEARCH AND DEVELOPMENT CENTER—United, Florida

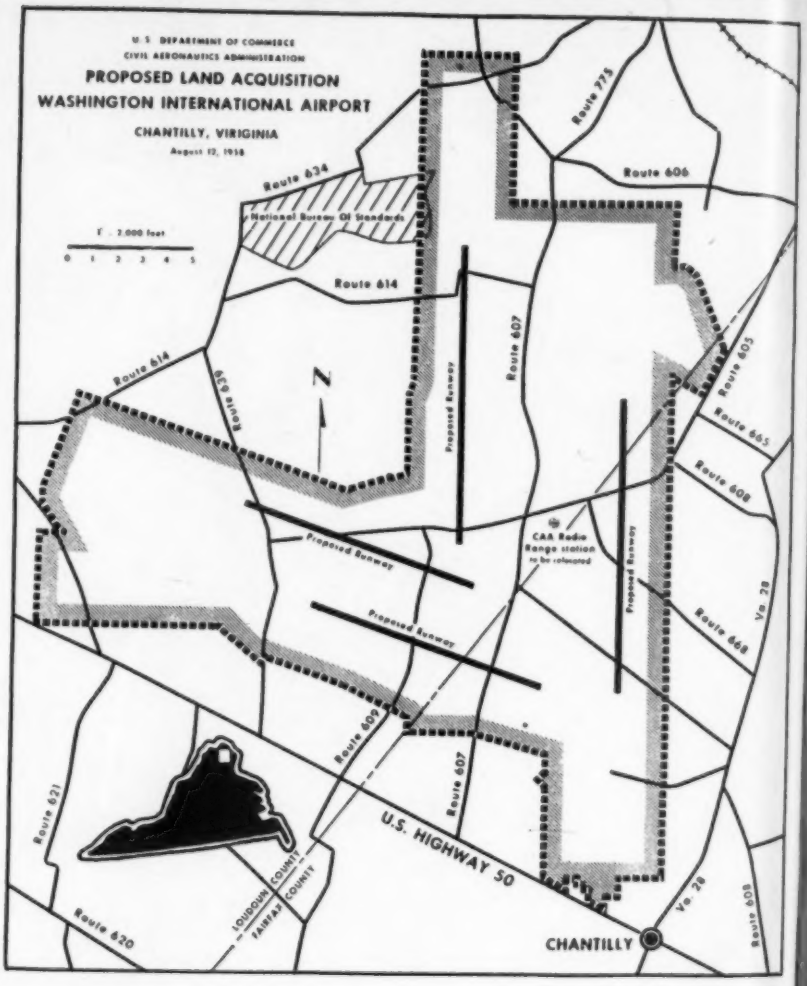
Capital's New Jet Airport Raises Storm

• Airlines unhappy over CAA's plan for Chantilly

• What should be model of efficiency simply isn't

• Engineering experts critical of runway design

By Joseph S. Murphy
Executive Editor



On Sept. 2, 1958, exactly 20 days ago, ground-clearing operations began for what should be the first and best airport in the U.S. to be built "from scratch" for jet service.

But throughout the weeks preceding that event, CAA airport engineers and the Air Transport Association were still debating the merits of the proposed Chantilly runway layout in meeting airline operating demands.

And although this dispute was resolved by rotating the west end of the East-West runway 20° to the north, there is no open indication that anyone, except perhaps CAA, is happy with the final Chantilly plan.

As a result, what should be the most modern and most efficient jet airport in the U.S., a prototype for other cities to follow, could prove to be just another airport. Some observers feel stronger about the situation, say it will be only a second-rate airport for jets. Nobody, it seems, is really proud of Chantilly.

• Who's to blame?—Why such a situation at this relatively mature stage of aviation development? Most observers place the blame on CAA for refusing to change its approach to airport planning. Consensus is that the Chantilly plan was drafted and adopted within CAA before any outside advice was sought.

And eventually, when CAA asked engineering proposals from a number of firms, it proceeded to whittle the roster down to five, then ignored them entirely and adopted its own scheme.

Once made public, the CAA North-South and East-West runway plan at Chantilly touched off a storm of protest from Air Transport Association and a flock of its airline members. Even residents in the area 27 miles west of Washington commented to AMERICAN AVIATION that "any hick farmer knows those aren't the prevailing wind conditions."

During formal discussions that followed to resolve the runway dispute, the wide gap between CAA and industry's approach to airport planning became quite evident. Here's how one airport consultant has sized up the situation:

CAA, it seems, predetermines the airport runway plan by a very simple geometric design—north and south, east and west. It makes the job easier. Acquisition of land, construction, road patterns, etc. conform very nicely with the 90° layout that results. As somewhat of an afterthought, CAA then analyzes the wind to determine what effect it will have on those who will use its airport.

• Airline approach more logical—The airline approach is different. Carriers feel that, if an airport is to be built from scratch, why not lay out the runways to conform with prevailing wind conditions? This, they feel, would give them maximum coverage with the least annoyance from crosswinds 365 days a year. More important, though, it would not compromise their ability to operate just to make the airport easier to build.

At one point in the ATA-CAA discussions it was brought out that a CAA man spent a full three days at an Air Force installation on the West Coast studying the USAF KC-135 experience relating to crosswinds. Upon presentation of his findings to airline officials, however, it was determined that what he learned was of little or no value in resolving their problem because of differences in the military's KC-135 operation and conditions existing at the airport visited.

But once an airport layout is adopted, changes become expensive. In the case of Chantilly, the final agreement to move the E-W runway 20° to the north meant buying some 1,400 additional acres, would have involved more if the full 35° change wanted by the airlines had been accepted. Carriers favored the runways at 305-125 degrees, compromised at 290-110 degrees.

And the cost of acquiring some 4,000 to 5,000 more acres ruled out an

adjustment the airlines sought in the North-South runway to a 20-206-degree heading.

• **Not the best compromise**—In effect this all adds up to a compromise short of what should be the best operating situation for jets at Chantilly. The airport will have four runways, but not one of them will be headed in the direction the users feel they should be for top performance.

Why? The reason, most observers feel, is because CAA is interested in laying out airports in the easiest fashion, not in a manner that will produce the best operating facility for aircraft.

And runway directional layout isn't the only shortcoming cited for the government's big new jet airport. The basic terminal and runway arrangement, operations experts point out, is far from ideal for jets.

What about taxiing distances and times, they ask? Shouldn't a jet airport provide for movement of aircraft through the airport in one general direction from landing, through the terminal to takeoff?

Not at Chantilly. For instance, on the readjusted Southeast-Northwest runways, all aircraft will be going away from the terminal as they land. Even with high-speed turnoffs, they will have to stop at some point, turn around and taxi back great distances to the terminal.

With jet direct operating costs running in the neighborhood of $15 per minute, it becomes obvious that the operators, not CAA, will have to pay a heavy toll for any such inefficiencies that increase ground time, prolong taxiing periods or generally hamper rapid movement of the aircraft.

Although the layout of the two North-South runways appears nearer to the desirable, the critics question any overlapping of runway and terminal areas as a shortcoming in getting jets off the runway without stops or tight turns.

• **Eight-minute delay may cost $120**—Time wasted unnecessarily on the ground by jets will be extremely expensive, they say. An airport with taxi distances consuming eight minutes will cost airlines as much as $120 per landing. If this is a built-in feature of an airport handling 100 operations per hour operators will be paying $12,000 for the wasted time.

The situation at Chantilly has become a case in point. And although the airlines fell short of getting their way, it is understood that, as a group, they have gone on record formally but not publicly against its final layout, should it prove a nightmare for jet operations come 1961.

Mr. Edmund Converse, President, Bonanza Air Lines

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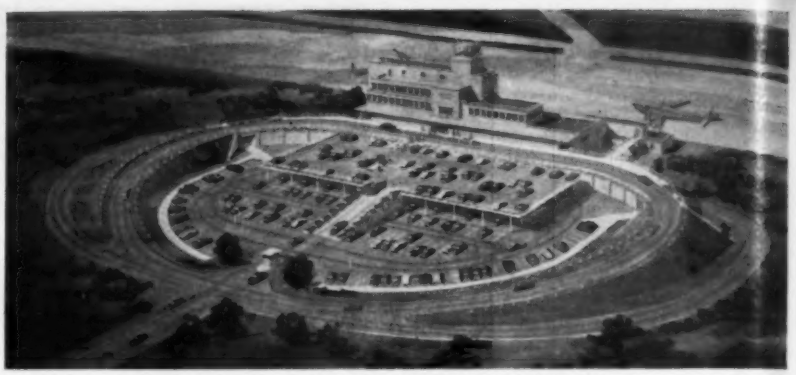

HARTFORD AIRPORT will get first "double-decker" parking lot.

Bringing Parking Closer to Planes

If the Sputnik Age brings larger and faster commercial planes and smaller cars, airport parking lots may be moved into the carriers of the future.

But until that happens, the Airport Parking Co. will continue its efforts to bring parking closer to the airplane.

This December, the first deck parking facility at any airport in the world will be opened by the company at Hartford, Conn.

The new ramp deck will bring cars to airport level and reduce the distance from car to airplane. The facility will cost more than $125,000, including landscaping, lighting and heating.

Parking now has become the No. 1 or No. 2 revenue producer at most airports and Hartford is a typical example.

When Airport Parking first leased the Hartford parking lot in 1954, the gross revenue that year was $33,000. Four years later it rose to $52,000, an increase of 57.5%. By 1963, the gross revenue is expected to pass the $100,000 mark annually.

The Hartford airport, which is directed by the State, is guaranteed a minimum of $12,000 plus a percentage of the receipts. The present contract provides for a 15-year lease and a five-year option.

• **Company now controls 30 sites**—Airport Parking, now the largest of its kind in the world, controls about 30 airport sites including those in Tulsa, Denver, Chicago, Detroit, Willow Run, Tampa, New Orleans, Cincinnati and even Puerto Rico.

Gross revenues exceed $5 million dollars annually with one airport producing more than half a million dollars.

Airport Parking began operations in 1949. Its success is due largely to two 41-year-old Clevelanders.

Howard Metzenbaum, an attorney, is responsible for the development of leases and financial arrangements. Alva T. Bonda, heavily experienced in layout and traffic mobility problems, handles the personnel and operations.

The pair were operating a number of downtown parking lots when it recognized that the post-war boom in air transportation was making parking a burdensome problem to airports. To meet the problem, airport directors had to find funds to develop adequate airport parking facilities. That wasn't always simple.

• **Idea proved out in Cleveland**—The first approach was made to Maj. Jack Berry, then airport commissioner of Cleveland. An agreement was worked out whereby Airport Parking would guarantee the city $400 a month in gross revenues.

Success was almost immediate and expansion to other cities followed. But it was the sound policies developed by the pioneering young men that helped.

Airport parking, they figured, was different from operating a city lot. Service and public relations were the two most important factors where leases were held on municipal facilities. The best service should be made available at the lowest cost. Further, the pair believed, if airport facilities were to become more important, it was worth investing in their development.

The company has spent more than $500,000 in the development and expansion of airport parking lots. And even the new facilities, such as Hartford, are designed with future expansion in mind.

Metzenbaum and Bonda know the airport parking picture so well today they are often sought as consultants and speakers on the subject. They have addressed and advised such organizations as the American Association of Airport Executives, the Airport Operators Council and the National Association of State Aviation Officials.

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SAM SAINT SAYS

In a recent discussion with a highly-placed airline official, we casually asked what his airline thought of the need for safety barriers at the ends of runways. We were thinking of the five or six airline airplanes involved in overshoot accidents every year.

This man, whose judgment we have always admired, replied in essence: The pilot knows the length of the runway, he knows the V_1 (when-to-abort-takeoff) speed and he knows whether he is getting his power or not. This is all the information a pilot needs for the right decision in any situation. *We don't think we need barriers.*

• **Terrifying moments recalled**—In a mild state of shock we thought back to the sort of experiences that stand out in every pilot's memory. A rough, gusty night, the visibility a half-mile in heavy rain, a little more crosswind than anticipated. The 50-ton monster in your hands bucking like a thing alive, the runway lights a smeary blur disappearing in the rain ahead as you feel for the ground. Suddenly you realize you are deeper into the runway than you intended to be!!—How much runway is left? You can only guess. To land or not to land? Decision must be made within the space of a few heartbeats. *Can I get stopped? Just how slippery is that icy surface?* This is the toughest decision a pilot ever makes in routine operation.

And with jets the pressure will be far greater—with less time to think! The increased inertia of 100 tons and more, 150 passengers back there in the bright lights of the cabin, fuel counters running down like mad. Deteriorating weather at your alternate and the air traffic complication in getting there may be pressuring you to try to squeeze it in.

• **Safety barriers save lives, money**—Safety barriers have already saved many lives and millions of dollars for the military. The Navy has installed "arresting gear" on its shore-based runways. Most installations to date use lengths of anchor chain as the decelerating device. *In the last fiscal year the Navy reports 269 aircraft ran into the arresting gear at the ends of their runways.* Ninety-six of these aircraft were not damaged. In the other 173 cases the damage was repaired with less than 100 man-hours of work in each case.

We had long ago heard how anchor chain was used to save Air Force jet fighters in Korea. The Air Force is currently installing safety barriers at most of its airports for snagging jet fighters to a safe stop when pilot judgment slips. The Air Force has development in progress for barriers to stop aircraft as large as the B-52.

• **Existing barriers adaptable**—Hours of talk with military project officers, manufacturers, the NACA and others who have followed or worked on this problem have convinced this reporter that safety barriers now available can be adapted to handle the weight and speeds of the large jets.

The All American Engineering Company of Wilmington, Del. has developed what seems to be the simplest and most practical device. The nose wheel of the flying machine engages a light cable that acts as an actuator. After the nose wheel has passed, a heavy cable is snapped up into position to catch the main landing gear. The heavy cable pulls loose-fitting pistons through long, tapering tubes filled with water. A 707 traveling 100 knots can be stopped in 700 feet with a deceleration of 1.5 Gs.

• **Installation cost: $100,000**—All American stands ready to guarantee satisfactory performance with aircraft up to 300,000 lbs. at speeds up to 120 knots. Even the skeptics agree that all the problems should be readily soluble. The same device will work equally well for propeller-driven airplanes. Such an installation would cost around $100,000 and take about ten days to install on most runways. *(One jet airliner saved would pay for 50 installations!)* Maintenance problems should be minor. Prototype installations are scheduled in England, Italy and Belgium. There are seven installations in Canada for high-speed jet fighters—a trickier problem than that posed by the big commercial jets.

The major airlines are interested, but not interested enough to state a requirement or encourage development of barriers to change disasters into incidents. The Port of New York Authority is "watchfully waiting." In the meantime pilots are being asked to shoulder a sharply increased responsibility at one of the most critical spots in their operation.

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Airport Sweeper

Low-pressure, high-volume suction unit by Wayne Mfg. Co. is said to be capable of cleaning one million sq. ft. per hour with speeds up to 25 mph. Available on straight sale or rental basis, sweeper uses a nylon agitator system.

Circle No. 1 on Readers Service Card.

Jet Fuel Service Cart

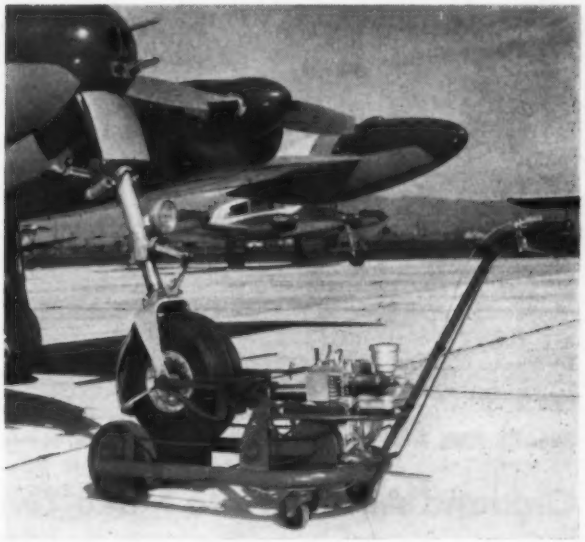
Developed by Bowser, Inc., this mobile cart meters, filters and removes water from fuel from airfield hydrants on service apron. Unit is transportable by towing behind a jeep or other field service vehicle or is self-propelled. Serv-A-Jet is said to have a refueling rate to 600 gpm.

Circle No. 2 on Readers Service Card.

Turbine Engine Starter

Pre-Lite Industries, Inc. has developed a self-propelled pneumatic ground starter, trade-named Air-Torq, said to be capable of starting any commercial or military turbojet or turboprop engine equipped with an air turbine starter. Device incorporates a storage tank filled by an industrial compressor which is driven by the same gasoline engine that propels the mobile unit.

Circle No. 3 on Readers Service Card.



Aircraft Tractor

The Aero Vector Div. of Yuba Consolidated Industries, Inc. has designed a new ground-handling device for light, single and twin-engine tricycle-gear aircraft. Powered by a Briggs & Stratton gasoline engine, the Aero Tractor, as it is called, is said to give speeds from .25 to three mph. A hydraulic jack is incorporated which allows the airplane's tail to be lowered for easy passage under hangar doors and other overhead obstructions.

Circle No. 4 on Readers Service Card.

BULLETIN

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CENTRAL AIRLINES

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BEFORE AND AFTER conversion. Designer is shown on wing of Super-V Bonanza.

Oakland Airmotive to Make Twin Bonanzas

Oakland Airmotive Co. has acquired the engineering and production rights of the Super-V Bonanza—a twin-engine conversion of the Beech Bonanza, designed by David Peterson of Tulsa, Okla.

Tooling, dies, jigs and fixtures for the manufacture of the Super-V have been set up and production will be under the direction of Peterson, who recently joined Oakland.

Two prototypes have been flying for more than a year and are now undergoing extensive evaluation and tests. A 90-day development program has been outlined by Oakland Airmotive for acceleration of CAA certification.

Powered with two 170-hp Lycoming fuel injection engines driving Hartzell full-feathering propellers, the Super-V has a cruise speed in excess of 200 mph, a single-engine ceiling of 11,000 ft. and a range of 1,400 miles at 175 mph. Integral wing fuel tanks have a capacity of 108 gallons.

Extensive use of fiberglass is made in the conversion, and unusual features of the aircraft include 14 in. deep engine cowlings without cowl flaps.

The entire nose section of the fuselage is available for baggage and optional radio equipment.

Oakland plans to set up regional distributorships for the conversions, making complete kits available to the firms selected. A provisional price of $15,995 has been set for the conversion of a Beech Bonanza to Super-V configuration, which will cover essential work, with optional plans costing slightly more for additional equipment or deluxe versions.

. . . Business Flying Briefs

• **Aerocar, Inc., Longview, Wash.,** has rolled out a non-roadable version of its flying automobile. Designated Model II Aero-plane, four-place aircraft retains same pusher configuration. It has folding wings and new tricycle landing gear.

• **L. B. Smith Aircraft Corp.** has been granted a Class 4 unlimited airframe repair certificate by CAA. Issuance of the certificates permits the company to perform on an unlimited basis airframe repairs and/or modification on all-metal aircraft weighing more than 12,500 lbs.

• **Bee Aviation Associates' Queen Bee,** a four-place, single-engine business aircraft currently under construction, is scheduled to make its first flight before the end of the year. According to Bill Chana, President of Bee Aviation, no U.S. production is planned. An Australian manufacturer is said to be evaluating the design with a view to purchasing the manufacturing rights.

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Circle No. 116 on Reader Service Card.

Newest Member of Aero Commander Line: The 500

One of two new models by Aero Design & Engineering Co., the Aero Commander 500, has been designed to fill the need for a high performance full-size executive transport at a price substantially below the existing Commander line. Powered with 250-hp Lycoming engines driving Hartzell propellers, basic price is $64,750.

Aero Commander 680E has high-aspect-ratio wing, higher payload and gross weight, more luxurious interior and Alti-cruiser type instrument panel. Price is $94,500.

—WEST COAST TALK—

By Fred S. Hunter

Remember the old wheeze about what this country needs is a good 5¢ cigar? What the transport aircraft manufacturing industry seems to need is a good turbofan engine in the 6,000 to 8,000-pound thrust class. Look at the trouble Boeing is having in trying to come up with a short-range 727 acceptable to the airlines. Douglas is in the same fix on the DC-9. Both companies are frustrated over lack of a suitable engine. They need turbofan efficiency to tap the short-range market with a jet.

Only available engines are General Electric's aft-fan version of the J57, which Convair will use in its Model 600, and a modified J57 on which Pratt & Whitney is working. Both are too big and costly for four-engine designs for short range and airlines back away from two-engine suggestions. Boeing made the rounds a while back offering a twin-engine 727 and drew a complete blank. Douglas proposed a DC-9 powered by two P&W J75s and couldn't stir up a ripple. The situation makes one speculate as to why Allison, which has been showing so much interest in the commercial field with its turboprop 501, doesn't come up with a smaller turbofan designed as such from scratch in this very desirable thrust range.

• **Milestone flight**—A good many airport people, and others, will be even more interested in the first flight of the No. 3 Douglas DC-8 than they were in the first flight of the No. 1 plane. This is because the No. 3 plane, which will be the second J57 plane, will be equipped with the new Douglas-designed noise suppressor and thrust brake. The No. 2 plane will be the first J75-powered craft and, like the J57 No. 1, will have a sound suppressor based on a design developed by Rolls-Royce.

• **Ejector system**—It's no secret that Douglas hopes to capitalize on the superior performance of its system, which consists of an eight-petal nozzle plus a retractable cylinder. In flight, the cylinder becomes part of the engine pod. During takeoff, it extends rearward a few inches beyond the end of the nozzle. Results in the test rig at Edwards AFB have been very promising. If these are matched by performance on the airplane, airport problems of the DC-8 will be minimized.

• **Watch your language**—Douglas is careful not to use the term thrust reverser for its thrust brake. You reverse the pitch of a propeller, but not the thrust of a jet engine, says Douglas. The thrust brake on the DC-8 is located in the ejector. Since actuating mechanism of the clam-shell type doors takes the terrific pounding and withering heat of the jet engine's exhaust, it is estimated a thrust brake will have to be replaced after 350 brakings.

• **High-priced water**—Airlines operating Boeing 707s or Douglas DC-8s powered by P&W JT3 engines will make use of water injection for takeoff only when necessary. In the first place, accountants say water—the purified kind you have to use to run through an engine—costs more than kerosene when you add up all the elements, including storage and handling problems. In the second place, when you run 6,000 pounds of water through four jet engines in 2¼ minutes you are going to cook up quite a cloud of smoke. Three or four jets taking off with water could close an airport for half an hour under certain conditions.

• **British engines**—A group from Douglas, including Carlos Wood, chief engineer at Douglas-Long Beach, recently visited Rolls-Royce in England to check into the possibility of fitting Tyne II engines to Douglas' C-133 cargo turboprop. Douglas is looking toward more power for C-133 growth and Rolls-Royce figures this makes it a prospect for its Tyne II, particularly if the airplane is released for use by NATO countries.

• **Off-line-Service**—Pan American has eight operations employes and three sales employes at Okinawa, although it operates no regular schedules through this station in the Pacific. Transits requiring PAA services average 50 a month. In addition to its own planes, PAA services Japan Air Lines, BOAC, Hongkong Airways and Air India International at Okinawa.

Circle No. 117 on Reader Service Card.

ROLLS-ROYCE DEVELOPMENTS

Jet Engine Noise Suppression

Rolls-Royce have been actively developing jet noise suppressing devices since 1950, and have accumulated a wealth of experience in the development and production of aircraft carried noise suppression systems.

Corrugated nozzles developed by Rolls-Royce, which are in production for use on the Avon engines of the de Havilland Comet 4, achieve a reduction of five decibels in the noise level of this aircraft with a penalty of less than one per cent in overall performance, and have accumulated more than seven thousand hours in flight in Comets alone. With these nozzles fitted, the Comet 4 is quieter in operation than contemporary large piston engined aircraft.

Rolls-Royce are also developing noise suppressing nozzles for the Boeing 707-420, powered by four Rolls-Royce Conway by-pass turbo jets.

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AIRTRENDS

When the 86th Congress convenes in January, it will have to go some to match the constructive record in aviation compiled by the 85th, which adjourned August 24.

The 85th Congress: 1. created a new Federal Aviation Agency with powers to regulate all air traffic; 2. approved a record peacetime $39.6-billion defense bill; 3. raised the legal public debt ceiling twice to accommodate the stepped-up spending; 4. established a new civilian scientific research agency—The National Aeronautics and Space Administration (formerly the National Advisory Committee for Aeronautics); 5. approved a reorganization of the Defense Department; 6. passed an extension of the Airport Aid Bill (vetoed by the President); 7. wrote a directive ordering the Military Air Transport Service to spend some $80 million with commercial carriers; 8. repealed the 3% freight transportation tax; 9. boosted airmail postage to 7¢; 10. relieved air taxi operators of the 10% excise tax on passengers; 11. granted a change in excise tax procedure giving airlines a quarterly instead of annual avgas tax rebate of 1¢ per gallon.

Weapon systems concept may be principal target of new investigation launched by House Armed Services Investigation Subcommittee, headed by Rep. F. Edward Hebert (D-La.). Staff members and paid consultants are already probing complaints against the system. One major complaint is that some firms have been completely shut out of defense contracts.

Hebert committee meets November 15 to consider its agenda of hearings during recess of 85th Congress. Other subjects it is expected to delve into are inventories in defense plants, construction of facilities for private contractors and airfield paving.

Senate Armed Services Committee is about to begin study of the Saltonstall Bill that would extend weapons system to all weapons developers.

Meanwhile, Small Business Administration, at request of Defense Department, has been looking into subcontracting practices of aircraft companies. SBA investigators have actually visited plants of nine producers, but results of study are not yet known.

High on agenda of items aviation manufacturers would like to see dealt with by the next Congress is the Renegotiation Act. An amendment that would have permitted appeals from Tax Court rulings to the U.S. Court of Appeals was passed by the outgoing House, but killed by the Senate. Senate Finance Committee felt it had insufficient time to study the proposal. Act was extended for six months in its present form, but will undoubtedly receive a thorough review at the next session.

Senate anti-trust probers are planning to issue a report highly critical of aviation insurance underwriters. They're dissatisfied with elaborate explanations given by industry representatives in testimony. Main thesis of the investigators: too few insurance "pools" are writing too much aviation insurance. Expected recommendation: federal regulation.

Limitations of federal mediation as a method of settling labor controversies were never more clearly apparent than in the case involving the Air Line Pilots Association and Piedmont Airlines. National Mediation Board gave up its efforts to prevent a threatened strike early this month after months of trying. Said NMB Chairman Leverett Edwards: "If they want a fight they are entitled to one."

Negotiations broke down last December. Contract covering some 160 pilots expired March 1. ALPA agreed to hold off strike threatened Sept. 1 pending new mediation efforts. Principal issue on which mediation broke down, was wages.

Justice Department will present indictment in Miami TV Channel 10 Case to Federal Grand Jury in Washington this week, but it's not known just who will be indicted. Award of channel to Public Service Television, Inc., subsidiary of National Airlines, last winter by Federal Communications Commission became subject of bitter controversy that resulted in resignation of FCC Commissioner Richard Mack.

AIRTRENDS

Split is developing among airlines over Detroit airport situation. American Airlines will move next month from Willow Run to Detroit Metropolitan, about 15 minutes closer to downtown. When AA announced its intention to move two years ago, other trunks said they'd remain at Willow Run. However, a few weeks ago, Allegheny, a local service line, said it would switch to Detroit Metropolitan in October. Then, Northwest Airlines broke the trunks' solid front at Willow Run by deciding to transfer operations in December. Rumor: Another trunk may follow.

Boeing is objecting to ground-run tests in certifying its 707. It was disclosed at annual airworthiness review hearings on Civil Air Regulations that Boeing and the Aircraft Industries Association are seeking to revise that portion of SR422A pertaining to take-off speeds. Claiming that the data required for this part of the certification could be gathered in free-air tests, Boeing is asking for two or three months in which to obtain the necessary figures for rewriting the regulation.

Boeing's stand is based on the fear of damaging an airplane in performing the test in its present form. Instead, it proposes to use free-air flight test information supported by ground test figures at representative points.

Objection to Boeing's proposal was voiced by the Air Line Pilots Association, which said it would be better for Boeing to lose a test airplane than for the airlines to lose an operational transport filled with passengers.

Airport noise battle continues to cloud jet inaugural picture for international operations, but informed guess is that situation should be resolved well in advance for domestic jet services. Following publicity given anti-jet activities by Port of New York Authority (see page 20), Pan American flew its first 707 across the Atlantic to undergo 36 hours of flight and noise tests at London Airport. Although no formal results of the London exercise were released, a subsequent visit to Paris Le Bourget Airport apparently brought a favorable reaction from French officials. Specialists conducting the noise evaluation at Le Bourget reported generally satisfactory results and a general impression from bystanders was that the 707 is not as noisy as the Russian Tu-104 which now serves the airport on regular schedule.

Airways Modernization Board is wasting no time in its drive to get into business in its Atlantic City, N.J. experimental center. Already slated to move to the new center is AMB's systems analysis directorate under acting director Hans Giesecke. Four divisions under Giesecke tabled for the move involve analytical simulation and computation, functional analysis, technical analysis and simulator operations. AMB will retain a systems analysis coordinating office in Washington where its operations division will remain. The Board's air traffic control air defense integration division will stay in Boston for close proximity to Lincoln Laboratory.

How good is good enough when it comes to position-accuracy in IFR (instrument) flying? This is the crux of the problem facing Civil Aeronautics Board in its move to require that all radio and electronic gear for IFR use meet its TSO (technical standard order) performance standards. Board proposed the new rule in CAR Draft Release 58-5, met bitter opposition from General Aviation Facilities Planning Group on behalf of general aviation. GAFPG termed the proposal a restrictive and revolutionary means to invoke unnecessarily high standards, said it would work a considerable hardship on general aviation.

CAA's air route traffic control center in Indianapolis is operating the first electronic computer in a planned network aimed at modernizing air traffic control. The machine, an IBM 650 RAMAC (Random Access Method of Accounting and Control) data processing system, is being used to compute and print flight progress data, estimate flight arrival times over check points, and determine airspace conflicts in flight plans. With a storage capacity of 6,000,000 digits, the computer can handle routine flights on airways as well as direct flights crossing airways.

Lockheed Aircraft Corporation, in co-operation with Shell, developed *new fuel techniques* to speed the servicing of the *Electra.*

Short stop for first U. S. Prop-Jet

LOCKHEED'S NEW ELECTRA . . . first U. S. prop-jet airliner . . . has such advanced design features that ground service time has been cut to only 12 minutes.

AeroShell Turbine Fuel, used extensively by prop-jet aircraft flying in the U. S. today, was selected for the proving flights of the *Electra.*

Shell trucks, specially designed to service this new airliner, deliver over 300 gallons of AeroShell Turbine Fuel a minute. Fuel is pumped aboard into all four wing tanks *simultaneously* through a new Lockheed single-point fueling system.

Shell's research in aviation aircraft fuels has always kept pace with aircraft development. Perhaps this is why the Shell fuel truck is such a familiar sight at airports everywhere.

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How can your help sell plane-auto travel? By simply mentioning the Idea of renting a car in *your* advertising—that's all! Hertz Rent A Car, 218 S. Wabash Avenue, Chicago 4, Illinois.

More people by far...use

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Rent a car

AIRTRENDS

If National Airlines starts jet service New York Miami in December with Boeing 707s leased from Pan American (see page 58), it will be the first domestic jet operator. American Airlines won't try to beat NAL by moving up starting time from January to December. AA has been advertising that it would be first with jets in U.S. Ads may be changed to "first transcontinental" later if NAL date remains firm.

CAB decision in General Passenger Fare Investigation won't come until next year. But carriers want immediate increase in passenger revenues. Among proposals made: knock out roundtrip discounts, cut family-plan discount, add another $1 to tickets, increase fares 5%. American, Capital, United and Delta have already filed new tariffs with CAB and a number of others are expected to follow. Meanwhile, Braniff has twice tried to file for a 15% surcharge on jets in 1960. CAB rejected both filings, the first because it didn't comply with economic regulations, the second because it conflicted with presently published fares.

Family-plan discount on economy-class tickets will be offered by transatlantic airlines. Discount, good during Oct. 15-Mar. 31 off-season, cuts $100 from one-way fare, $150 from roundtrips. A man paying full New York-London economy roundtrip fare of $453.60 can take his wife (or children 12 through 25 years of age) for $150 less, or $303.60.

Jet crews of Continental Air Lines will operate with pilot-qualified flight engineers, CAL President Robert F. Six has notified crew members. Newly employed flight engineers, Six said, must possess a commercial pilot's license and instrument ratings and meet other qualifications to be established. Present flight engineers who do not hold such a license or ratings "shall, as qualifications precedent to being awarded a bid to serve as flight engineer on such aircraft, obtain such ratings," he said.

Six admitted that his policy statement might require further amplification because matter is now involved in negotiations between Continental and Flight Engineers International Association. CAL-FEIA dispute is being mediated. Contract with engineers expired more than a year ago. Court injunction last Spring prohibited airline from hiring any more flight engineers who were not qualified airframe and engine mechanics as specified in the effective flight engineer contract.

Return to subsidy on New England local-service-type routes has been asked by Northeast Airlines. No subsidy was requested for Florida operation. CAB took NEA off subsidy Feb. 7, 1957, less than a month after Florida service started, and company has been on an open rate since. It wants $3.2 million from that date through June 30, 1958, to cover losses and return on investment on New England operations. NEA lost $4.3 million last year and another $3.7 million in first seven months of 1958.

Ten percent transportation tax ends January 1 for air taxi and small air charter operators. National Air Taxi Conference, representing 140 of the 1,200-1,300 major air taxi operators, estimates savings will amount to quarter of a million dollars among passengers carried by its members (NATC carried about 100,000 passengers almost 10 million passenger-miles last year with fare averaging 25¢ a mile). National Aviation Trades Association and NATC fought hard for relief and obtained it in the bill that attempted to realign federal excise tax structure and to eliminate certain inequities in the law. Provision applies to operators with planes of less than 12,500 lbs. gross takeoff weight, and aircraft with capacity not in excess of 10 seats, including that of the pilot.

Recession in the airlines may have ended. Domestic airline traffic in August totaled 3.38 billion passenger miles, an increase of 1.4% over that of a year ago. This small increase is the first one in four months, and marks a welcome change from the general traffic decline which reached a low point last May.

Load factors during August also improved, although the 12-months-to-date

figure dropped to an eight-year low of 59.07%. One factor contributing to the poor load factors has been an increase in available seat miles, which reached a new peak of 3.77 billion in August.

Biggest airplane trade-in deal yet has come to light. Douglas Aircraft Co. has agreed to buy back from United Air Lines 10 DC-7s for an amount near $10 million. Money will be applied by UAL on purchase of 10 DC-8s. Price of DC-7s is to be $1,250,000 each, reduced by $5,000 for each month UAL has had the aircraft. Deliveries to Douglas are to be at the rate of one per month beginning in November 1959.

Several months ago, Boeing took in 15 Stratocruisers from British Overseas Airways Corporation, reportedly at $300,000 each, and turned them over to the Babb Co., brokers, for resale. BOAC has Boeing 707s on order. There's speculation that trade-ins may be worked out by other lines. However, contrary to rumors, American Airlines has no such deal with Convair in connection with purchase of Convair 600 jets, and the manufacturer is said to have no arrangements to help AA sell old equipment.

American Express caused no small amount of head-shaking with a request last month for authority to operate as an indirect air carrier. An application has been pending for a long time for registration of AE as an international air freight forwarder, and company officials say that they have put so much time and effort into this case they decided to make a try for the more far-reaching authority.

Recent newspaper ad by an airplane broker offering two brand-new F-27s at factory prices covered planes ordered from Fairchild by Wheeler Airlines, Canadian operator. Wheeler reportedly no longer wants the F-27s because of changes in its operating plans, and turned them over to a broker to avoid paying cancellation penalties.

Will U.S. and Russia try to negotiate a civil air agreement? Reds have proclaimed loudly on several occasions that they're ready to talk. Most recent incident occurred at a Moscow social affair, when Soviet Premier Khruschev asked the U.S. Ambassador why U.S. didn't want to negotiate. But Russians have never followed through on any of their statements by contacting the U.S. State Department. U.S. has more or less agreed in principle to the idea of talks.

There has been no official exchange of views on a bilateral, but there have been hints that U.S. may try to decide before too long what its position would be in negotiations and what items should be on the agenda.

With or without a pilot contract, Pan American World Airways says it will start transatlantic jet service in late October. Company plans to use supervisory pilots if agreement isn't reached in time with Air Line Pilots Association. PAA claims that, in current talks, ALPA is demanding jet pay that would be 82.4% above present piston pay for PAA pilots.

Some indication of the profit potential of new jets was given at CAB hearings in New York-San Francisco nonstop case. American Airlines presented estimates indicating that Boeing 707's break-even load factor on long hauls will be 53%. And AA says the new jets are being counted on to attract a 15% increase in traffic in 1959, another 10% in 1960.

Contracts totaling $24 million were awarded September 16 by the Military Air Transport Service for augmented airlift to Europe and Far East.

Two Contracts were awarded to TWA with a total bid of $11,988,156 for:

1. 350 tons of cargo to Europe and 2,100 passengers on return trips each month for the 12 months beginning October 1.

2. 4,000 passengers per month roundtrip between the U.S. and Europe for the same period.

PAA was awarded a $6,825,024 contract to carry passengers and freight between the U.S. and Japan in daily service.

Transocean Airlines was low bidder at $1,952,510 to supply a Pacific inter-island service carrying a mixture of passengers and cargo. Slick Airways was awarded a $3,534,566 contract to carry 2,000 passengers per month between the U.S. and Japan, roundtrip.

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EXCLUSIVE

Dave Chasen, noted Beverly Hills restaurateur, approves a great entree.

Sirloin of beef... broiled to your order in flight!

Your Ambassador flight hums toward the evening sun. Dinner is served—a celebrated event on TWA. You begin with cocktails, you conclude with coffee, a choice of liqueurs, and a satisfied sigh. But the high point, an airline innovation by TWA chefs and Dave Chasen, is a culinary masterwork—a tender cut of prime sirloin of beef broiled in flight to individual taste. All this, of course, part of a most pleasant and rewarding trip by TWA Ambassador.

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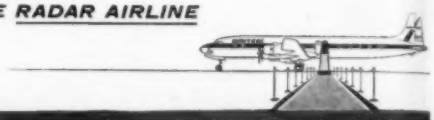


*Red Carpet is a service mark owned and used by United Air Lines, Inc.

BRISTOL 170 SUPERFREIGHTERS are a big part of the reason for Silver City's success. The airline has a fleet of 22 aircraft, mostly engaged in car ferry work.

This Line Cashes in on Short Hauls

By Anthony Vandyk
International Editor

One of the most successful commercial air operations in Europe is Silver City Airways' automobile ferry between England and Continental Europe. Since the ferry services started in July 1948, Silver City has transported some 225,000 cars and 775,000 passengers to and from the Continent of Europe. At the peak of the season about 500 cars are carried each day.

At the present time one out of every four automobiles going from England to France travels by Silver City Airways. Within the next few years, the privately owned airline confidently expects to be carrying more than half of the traffic.

Fares vary according to the day of the week and the time of year. In a market that is extremely seasonal and directional, Silver City has done its best to encourage automobilists to travel before or after the main season and during the mid-week days by offering substantially lower fares for travel during these periods.

Further, to fill the aircraft during the flat season and on days when traffic is light Silver City has contracted with major automobile manufacturers in England and France to deliver new cars across the English Channel. A large amount of freight is also carried, mainly on a space-available basis.

Silver City's main operating base at Ferryfield, on the southeast tip of the English coast, was built by the airline as a private venture at a cost of some $1,500,000. The first civil airport to be constructed in Britain since the war, it was specially designed to deal with the air transport of automobiles. Streamlined procedures at Ferryfield enable cars to be handled with a minimum delay. Drivers check in at the airport about 35 minutes before take-off, and after completion of formalities have time to use the restaurant facilities before leaving on the 20-minute flight to Le Touquet, on the northeast coast of France.

As many as three cars can be accommodated in each of the aircraft. Motorcycles and bicycles are loaded next to the cars and are held in an upright position with protective felt and webbing. Then passengers enter the 15-seat cabin at the rear of the Bristol 170 Superfreighters. The aircraft fly at an altitude of 1,000 to 1,500 ft. at 165 mph. Despite the frequent take-offs and landings the aircrafts' two 2,000-hp Bristol Hercules engines have proved to be completely trouble-free.

The entire time elapsed between arrival at Ferryfield for check-in and driving away from Le Touquet is little more than one hour. For the equivalent surface journey almost half a day is required.

During the peak season on the trunk route between Ferryfield and Le Touquet an aircraft takes off every few minutes. Services are less frequent on the other routes but extra sections are always operated in the case of heavy demand. These other routes are: Ferryfield-Calais; Ferryfield-Ostend; Southampton-Cherbourg; and Southampton-Deauville.

Unlike most airlines Silver City is not particularly concerned about re-equipment. A fast aircraft would reduce the flying time between Ferryfield and Le Touquet by only a couple of minutes or so. The Bristol 170s with their fixed gear and nose doors are ideal for this type of operation and Silver City sees no particular reason to replace them. While a larger aircraft might be more economic with full loads, the three-car Bristol 170 gives the company tremendous flexibility. Moreover, most new types of freighters have turboprops, a type of powerplant that would show poor economy on the short haul routes of Silver City where the aircraft rarely fly much above 2,000 ft.

8,500-Gallon Refueler

Designed for Qantas jets, it's being used in Honolulu

An 8,500-gallon semi-trailer refueler, said to be the biggest such unit at any airport, is being operated at Honolulu Airport by Lockheed Air Terminal.

LAT currently is using the oversize rig to refuel Flying Tiger Line Super Constellations and other trans-Pacific aircraft with aviation gasoline. But it was designed for Qantas Empire Airways' Boeing 707s and other jet transports beginning in 1959.

With time on the ground so costly for jets, Qantas is scheduling a 40-minute stop for its 707s at Honolulu. Conventional method for fast refueling would be to use four standard 5,000-gallon trucks. But LAT has been handling jet fuels for 10 years—since 1948—at Lockheed Air Terminal in Burbank and at Palmdale and it has some definite ideas on requirements. It expects to be able to expedite refueling procedures by using two specially de-

signed large-size semi-trailers instead of four.

For Qantas, the average 707 refueling at Honolulu is expected to be 12,000 gallons. LAT will be able to accomplish such a refueling with two trucks in 10 minutes.

The way to avoid trouble with kerosene is to clean up the fuel and keep it clean, says John N. Katenhausen, LAT manager. The 8,500-gallon tank of LAT's refueler is coated with Trailite (Spec. Mil-C-4556A), a porcelain-type lining, after the interior has been shot-blasted. Piping upstream of the two Warner-Lewis nonferrous filters is coated in the same manner and piping and all equipment downstream of the filter/water separators is nonferrous.

LAT is so sure of the need for tank coating in handling kerosene that it is coating the underground tanks at Lockheed Air Terminal in Burbank with Trailite.

The second of the two refuelers LAT will operate at Honolulu will be delivered at a later date.

PAA, NAL in Unique Leasing Deal

Airlines exchange stock, agree to lease jets to each other to meet seasonal traffic loads

By Eric Bramley
Chief News Editor

In a significant and unique deal, Pan American World Airways and National Airlines have agreed to lease jet transports to each other and to exchange substantial blocks of stock.

The deal started immediate speculation regarding the possibility of an eventual merger of the two companies.

The agreement may mean that NAL, with PAA Boeing 707s, will be the first U.S. domestic operator of jets, ahead of American Airlines. It can give NAL a tremendous advantage this winter in the nonstop New York-Miami market, where it will be flying 707s against the Lockheed Electra turboprops of Eastern and the DC-6Bs of Northeast. NAL is not scheduled to get its first Electra until next April and its first Douglas DC-8 until December, 1959.

Major provisions of the agreement:

1. PAA will lease jets to NAL during the winter seasons of 1958-59 and 1959-60.

2. For 10 years, starting in 1960, PAA will lease jets to NAL in the latter's busy winter season, and NAL will lease jets to PAA in the summer, when transatlantic traffic is at a peak.

3. The two airlines will exchange 400,000 shares of common stock.

4. PAA has an option to acquire up to 250,000 additional shares of NAL at $22.50 each, provided NAL realizes high load factors on the jets leased from PAA. The option runs from July 1, 1959 through June 30, 1961. NAL's stock was selling at $19.75 when the agreement was announced.

• **Jet service to Miami starts Dec. 10**—NAL plans to start jet service to Miami, one roundtrip daily on Dec. 10, with flying time of 2 hrs. 15 min. Another trip will be added Dec. 16. Planes will carry PAA markings, and PAA will train NAL's flight crews. NAL has a contract with its pilots covering jet pay, but the contract may be reopened by the pilots over the question of jet crew complement.

The exchange of stock will make PAA the largest stockholder in NAL (about 25%) and NAL the largest PAA stockholder (about 6%).

The agreement provides that for eight years "all stock of either company held by the other will be voted on each matter presented at each meeting of stockholders of the other in the same manner as a majority of all other stock voting on such matter is voted." Pending a CAB ruling, the stock is to be held by independent trustees.

PAA and NAL told CAB that the deal does not constitute an acquisition by either of them of control of the other. They asked a CAB ruling to that effect, but if CAB finds that control is involved, they want approval of such control.

• **First such airline deal**—The stock option, unique in airline history, gives PAA the right to acquire 250,000 more NAL shares at $22.50 each, provided that NAL operates the leased jets at a load factor of at least 80%. For each percentage point that load factor is below 80%, PAA loses the right to buy 8,333 1/3 shares. Thus, if NAL operated at less than 50%, the entire 250,000 shares would be lost. These conditions apply if NAL operates at standard fares.

If NAL charges an extra fare on jets, PAA is entitled to buy 50,000 shares regardless of load factor. It could then buy 200,000 more if load factor were at least 65%, and would lose 13,333 1/3 shares for each percentage point below that figure. This also means that a load factor of less than 50% would nullify the option on the 200,000.

Although the lease for the next two winters provides only for rental of PAA jets by NAL, the long-term lease is a two-way deal. PAA will lease NAL two jets during Dec. 1 to April 30 of each year from 1960 through 1970. NAL will lease two to PAA during May 15-Oct. 15 of each year. The number of planes involved can be increased by mutual agreement. Under this lease, PAA planes leased by NAL will be flown with NAL markings, and vice versa.

CAB Takes Stand Against Higher Fares for Jets

Premium fares for jet aircraft would be "inconsistent with long-standing policy," the Civil Aeronautics Board said earlier this month in a letter to all U.S. airlines that operate internationally. Question of jet fares is being considered at the traffic conference of the International Air Transport Association now being held at Cannes, France.

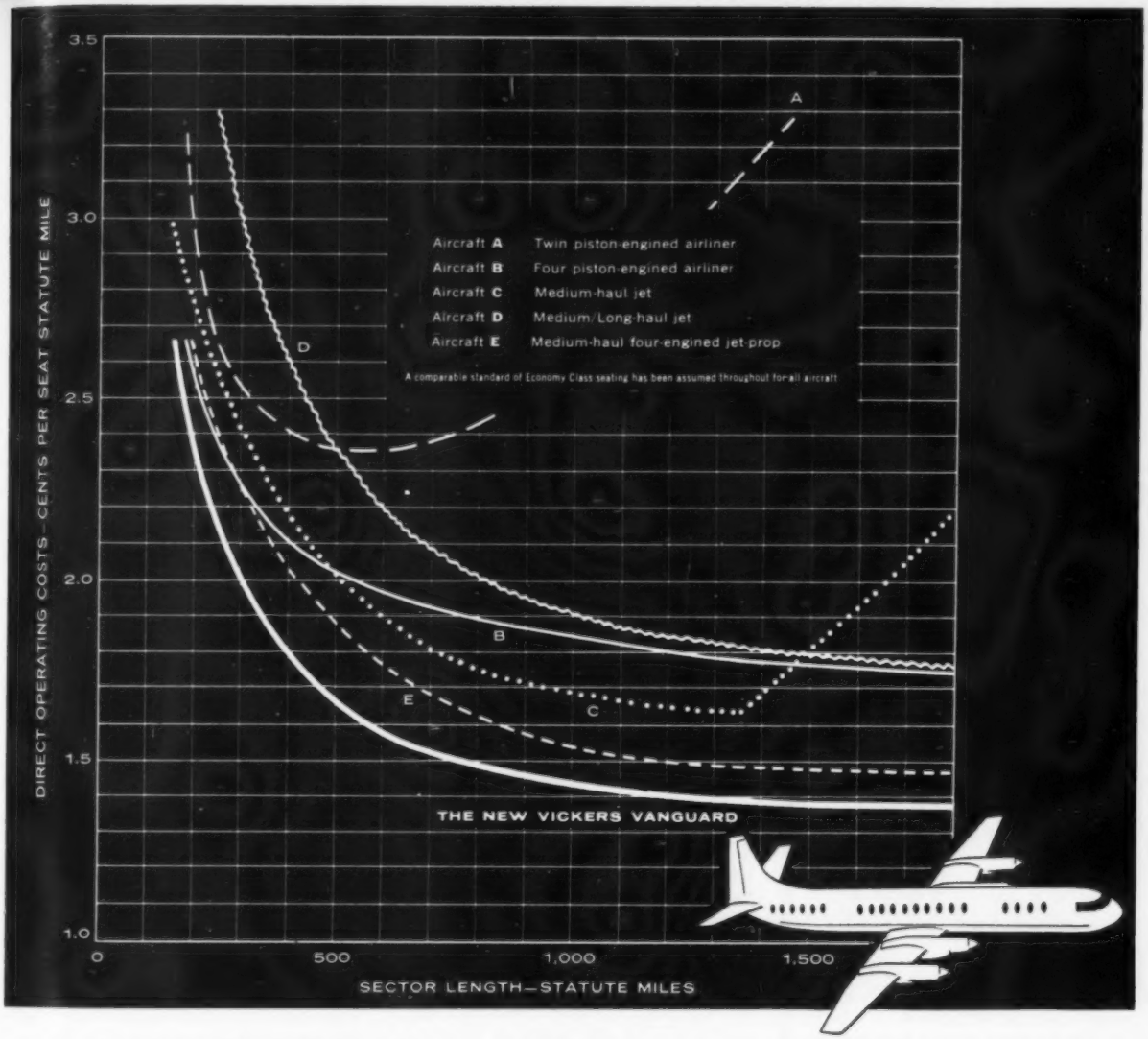
The CAB's letter served notice on IATA that international carriers planning to use jet equipment to serve U.S. points will have to "hold the line" on fares. "Jet equipment shows promise of being more economical than aircraft presently in service," the CAB said. "It is particularly important, therefore, that opportunity to operate jets in the low fare service be protected."

The Board notes that a critical factor determining the cost of operating jets will be the seating configuration used. To the extent that jets prove to be more economical, it would appear essential that this cost advantage be reflected in lower fares so as to achieve maximum development of the traffic potential."

West Coast Airlines To Launch F-27 Service

West Coast Airlines plans to begin service on Sept. 28 with its new F-27 turboprop transports. WCA will be the first local service line to introduce the F-27.

Two roundtrips daily will be flown to Olympia, Wash.; Portland, Ore.; Medford, Ore., and Klamath Falls, Ore. via intermediate cities. Two trips are also planned to Idaho via Yakima, Wash.; Pasco, Wash.; Walla Walla, Wash.; and Lewiston, Idaho, one flight terminating in Idaho Falls, the other in Boise. WCA and ALPA are in mediation for a new contract covering F-27 operations.



AIRLINE REPORTS LOWEST SEAT-MILE COSTS

A recent impartial evaluation by one of the world's leading airlines showed that the new jet-prop Vanguard will offer the lowest seat-mile operating costs on all sectors from 200 miles to 2,000 miles. The Vanguard, with a maximum payload of 29,000 lb. and a 139-seat configuration, was compared to five other modern airliners for economy class jet age service—including British and American pure jets and jet-props.

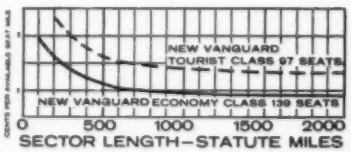
HIGHEST PROFIT POTENTIAL

To most American carriers in the jet age, the Vanguard will offer a profit potential *at least 35%* higher than that of any comparable airliner—and *twice* that advantage on economy configurations. Many factors contribute to Vanguard profitability on all ranges up to 2600 miles. Rolls-Royce jet-props have proved their reliability and ease of maintenance. Simultaneous on-and-off loading of both passengers and freight permits fast turnaround. On high-density routes, the Vanguard is the biggest profit-earner ever offered to the airline industry.

The Vanguard's large, well-balanced passenger/freight capacity makes possible high utilization and high profits even on off-peak services. Because of its smooth, silent comfort and speeds that will be competitive with jets on short-to-medium ranges, the Vanguard offers strong passenger appeal that makes for good load factors.

For detailed specifications and a cost analysis based on your operations, contact Christopher Clarkson, U.S. representative, 10 Rockefeller Plaza, New York 20, New York.

The chart at the right shows the Vanguard's direct operating costs, and is based on A. T. A. costing methods. The figures are representative for American carriers. Note that Vanguard costs will be about 2¢ per available seat mile on 100-mile sectors—and *under* 1¢ on all sectors over 900 miles.



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New VPs at Fairchild

Carmichael, Palmer and Newbold named in reorganization

Fairchild Engine & Airplane Corp. has established three corporate vice-president positions under a new organization plan aimed at aligning responsibilities "more closely to the changing patterns in defense and non-defense areas of our business," Richard S. Boutelle, president, has announced. They are:

Corporate vp for coordination of planning, and product and market development—F. E. Newbold, Jr., now serving as general manager of the Engine Division.

Corporate vp for commercial transport—James H. Carmichael, formerly president of Capital Airlines. He will have overall management responsibility for the new Commercial Transport Division, which includes the F-27 turboprop transport program. R. James Pfeiffer, formerly executive director of corporate planning, moves up to vp-marketing in the new transport division.

James H. Carmichael

Corporate vp for communications—Richard C. Palmer, formerly assistant to the president and senior representative for Fairchild in Washington, D.C.

William L. Landers is vp-general manager of the Missiles-Aircraft Div. (formerly Aircraft Division, which he headed).

The changes were many months in the making and came on the heels of many rumors that followed the resignation of Arthur F. Flood as vp-comptroller and the return of Sherman Fairchild to the board of directors as chairman.

Boutelle said the new plan "is the result of extensive study by Fairchild management, outside consultants and a committee of the board of directors."

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People on the move in . . .

. . . Transport/Maintenance

Elbert H. Green has been named a member of the board of directors of Ozark Air Lines to fill a vacancy created by the resignation of Arthur A. Blumeyer. He is also president of Richland Mfg. Co., a director of Southern Finance Co. and a director of Ozark Acceptance Corp.

Marvin Claeys has been appointed quality control superintendent for United Air Lines, a newly created position in which he will develop and maintain company-wide programs related to quality control.

H. J. Chase has been elected vice president of maintenance operations and **D. O. Wood** has been elected vice president of engineering and research of Lockheed Aircraft Service, Inc. Chase formerly was vice president and base manager of Lockheed Aircraft Service-International, the company's subsidiary at New York International Airport. Wood, who takes over a newly established post, previously was vice president-operations.

. . . Manufacturing/Military

Charles D. Manhart has been elected to the new position of vice president—government relations for Raytheon Mfg. Co. He was formerly with Bendix Aviation Corp. for 23 years, serving in various posts connected with the engineering, production and marketing of government equipment.

Col. E. A. Russell, Jr. has succeeded Col. Clifford E. Cole as Air Force plant representative at the California Division, Lockheed Aircraft Corp. **Lt. Col. Jack M. Kirtland** succeeds **Lt. Col. Howard R. Hutchinson** (retiring) as deputy Air Force plant representative.

Norman K. Warner has been appointed general manager of the Transport Engineering Division, Potter Aeronautical Corp. Formerly with Eastern Airlines, Warner will take charge of the division that handles airline operations, line maintenance and overhaul under contract.

Aerojet-General Corp. has named **Maj. Gen. Arthur W. Vanaman** (USAF ret.) as assistant to the president. He has been a consultant to the company since 1954.

Hubert R. Shaw has joined Bell Aircraft Corp. as associate director of engineering for the Avionics Division. For the past three years, he has been vice president and director of engineering for Teledynamics, Inc.

Dr. Martin J. Gould has been named chief of electronics research of Bell Helicopter Corp. He formerly was affiliated as consultant with Reaction Motors Division, Thiokol Chemical Corp.

Minneapolis-Honeywell Regulator Co. has named **George P. Smith** director of sales service department of the Aeronautical Division. He will supervise the division's field service engineering group, technical school and repair control group.

Dr. C. J. Breitwieser has been named vice president of engineering and sales of Air Logistics Corp. He will continue as president of Polaris Engineering, which recently became a subsidiary of Air Logistics.

Actuation Research Corp. has elected **O. A. Wright** a vice president.

J. P. Lawler has been appointed a vice president of Aeronca Mfg. Corp. He will continue as the Washington representative of the company.

THE BULLETIN BOARD

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—EN ROUTE—

Wayne W. Parrish

Hitting Fifteen More Airports . . . Via Lake Central

Blanketing the two midwestern states of Indiana and Ohio and extending into the fringes of three other states is an unusual airline.

It is unusual because (1) it is owned mostly by employes; (2) it has been painfully short of working capital; (3) it was burdened initially by a completely cockeyed route structure handed down by CAB, and (4) it has just about the toughest struggle of any local carrier. But by its own "Operation Bootstrap" it has been pulling itself up bit by bit.

The airline is Lake Central, based in Indianapolis. Until last Armistice Day weekend (1957) I had never flown on it. But in several days of flying I hit 15 out of the 27 stops on the system, including eight brand new airports, in pursuit of my hobby.

It took only a phone call to Gwin Hicks, the president, to start the ball rolling. I was going out to Decatur, Ill., to see my parents, and could work in an LCA tour going and coming.

I took an evening Capital flight from Washington to Youngstown, Ohio, to spend the night. Dick Wright and Gordon Wells of LCA took me into town and we chatted over a hamburger for awhile. Early next morning Dick Wright picked me up for the early departure west. There was local fog at the start but from there on out the weather was excellent—a fine November day. Crew was Capt. Bill Hicks, co-pilot was Don Witt, and stewardess was Pat Moore.

First two stops were both new to me—Dover-New Philadelphia, and Zanesville—both in southeastern Ohio. Passengers on and off both places, pretty good load.

Big Surprise at Columbus

Next stop was Columbus and a big surprise, particularly for early morning on a holiday. Gwin Hicks met me and took me into the terminal lounge, which was closed to the public but opened for a welcoming committee of no less than a dozen airline and civic people, including Maurice Pottman, executive assistant to the mayor. And on special duty was a bartender called Norman, the fastest-talking, sharpest-cracking, hot-line quipper I've ever encountered in my life—a real character.

On hand were Paul Strahm of TWA, Paul Loar of Piedmont, John Kincaid and Harold Watson of Eastern, Pat West and W. A. Davis of LCA, Ken Friscoe and R. A. Rowland of American, and of course the irrepressible and livewire Jack Bolton, manager of the airport. (He'll have a fine new terminal open soon.) Also on hand were John Biehn and Joseph Van Heyde of the Columbus Airport Commission, and Tom Wilson, chairman of the Chamber of Commerce aviation committee. The turnout was amazing—and I felt quite flattered.

Off to Portsmouth, Ohio, a relatively new addition to the system which is paying off well, to be met by Lawrence Johnson, executive vice president of the local chamber of commerce, who made me an honorary member, and B. LeRoy Compton, chairman of the chamber's aviation committee. And also, of course, LCA's manager, Paul Webb. Hicks accompanied me as far as Indianapolis.

Then came Cincinnati at lunch time. Byron Dickie, airport manager, had planned to fly us in a helicopter to a country club for lunch but Byron had a boating accident on the river early that morning and hadn't gotten unsnarled. Gwin and I had a sandwich in the Sky Chef restaurant (always good) and Bernard Antor, LCA manager, joined us for coffee.

On to Indianapolis with Captain Tom Mikita and Charles Yates, co-pilot Jack Weaver and Stewardess Fran Lang, to be met by a delegation which included Bob Clifford, LCA v.p.-operations; old friend Roscoe Turner, state aeronautics director Dick Cunningham; Brooks Honeycutt, assistant public relations director of Allison Division of GM; and Dan Tharp, airport manager. I was interviewed for WLW-TV, and got a look-see at Allison's Convair fitted up with its turboprop engines then undergoing 1,000-hour tests.

Off on another flight segment to Bloomington, Ind., a new stop, where Jim Humphrey, LCA director of public relations and Jack D. Anderson, district manager for Chicago, got on board for the hop to Danville, Ill., where I was to transfer to Ozark about three hours later. Robert Burrow, gen. mgr. of the *Commercial-News* and Martin Gagie, managing editor, took me, Humphrey and Anderson on a tour and then to dinner at the country club. Hospitality much appreciated.

Back in My Home Town

The Ozark trip to Decatur, and later to Chicago, was familiar territory. John Trovato, station manager at my home town, is an alert guy who never stops promoting Ozark. On the Chicago flight I had Capt. Jim Cole, whom I've flown with before, and Doris Lark, a good-looker and efficient stewardess who was given an orchid on this page several years ago following an Ozark trip from Wichita to St. Louis.

It was a night flight on Lake Central from Chicago to Detroit—the long way around. Jack Anderson went with me and the captain was Bob Nilson, and stewardess was pretty Marie Iden, who hails from West Virginia.

First stop was Lafayette, Ind., where we were delayed an hour while the heater was being fixed. On hand were Dr. Robert B. Stewart and Grove Webster of Purdue University, which is plenty active in aviation and operates a DC-3 or two. (It owned LCA at one time and Dr. Stewart was president.) Shop talk in a university cafeteria at the terminal.

Then came two stops in quick succession, both new, Kokomo-Logansport-Peru, and Marion, Ind., and then Lima (pronounced Lyma, they want you to know), in Ohio, where a delegation headed by Mayor Clyde Welty and Chamber of Commerce Secretary Charles Guy, greeted me, along with Richard Allison of the airport commission, Roy Roush, a county commissioner, and a newspaper reporter and photographer. Jim Dickie is the civic-minded LCA manager there. Lima likes its service.

From there we flew to Toledo and on to Detroit, arriving at a late hour. I had hoped to snag a seat on a Capital flight back to Washington but no soap. Long waiting list. So Jack Anderson got me a room at the hotel in Ypsilanti, a lot closer than going into Detroit, and next morning I got on a Capital Viscount for the home stretch.

It was a fine tour. LCA is a good outfit with devoted employes (and stockholders). If CAB were on the ball and understood the realistic problems of airline route structures and operations, it would have helped LCA long ago.

AT END of first day's tour of LCA at Danville, Ill.: l. to r., Jack Anderson, Chicago manager; WWP, and Jim Humphrey, director of public relations.

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Texaco products are the best adjunct to fine service

"Like the airlines, we prefer Texaco—and have, right from the start," says George Crockett, owner of Alamo Airways, Las Vegas, Nevada. "We believe the best way to build business is to render better service, and back it up with the best available products. Texaco has played a big part in our steady growth over the years."

Alamo Airways has sold Texaco products for over 16 years, because Texaco aircraft fuels and lubricants give private and corporate aircraft airline-dependability of performance. Texaco dependability is so well known, in fact, that, *during the last twenty-three years, more scheduled revenue airline miles in the U. S. have been flown with Texaco Aircraft Engine Oil than with all other brands combined.*

A Texaco Aviation Representative will be glad to show you how Texaco products can boost your business. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write the Texas Company, Aviation Sales Department, 135 East 42nd Street, New York 17, N. Y.

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